Railway Age

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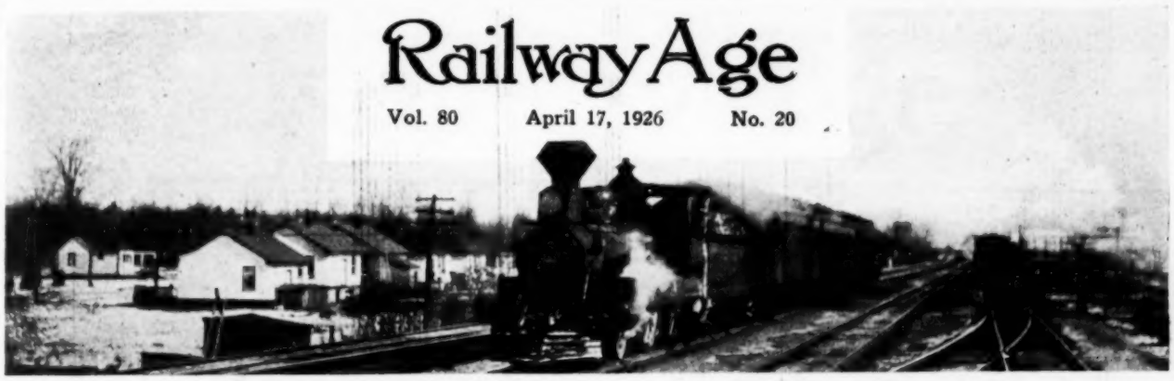

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GENERAL NEWS DEPARTMENT **1087**

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Railway Age

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Ton-Miles Per Freight-Train-Mile

AN interesting illustration of the increased operating efficiency of the railways in 1925 is brought out in the annual bulletin just issued by the Car Service Division of the American Railway Association. In a comparison of ton-miles, train-miles and freight revenue the bulletin shows that the 414 billion revenue ton-miles of freight handled by the Class I roads in 1925, as compared with the 412 billion handled in 1923, the previous record year, were carried with 612 million freight-train-miles, as compared with 641 million in 1923, so that the revenue ton-miles per freight-train-mile in 1925 averaged 675.7, as compared with only 643.4 in 1923. The revenue ton-miles per freight-train-mile for 1925 exceeded the average for 1924 by 4.5 per cent and that for 1923 by 5 per cent. This performance, the bulletin points out, was largely due to the increased average trainload which maintained an unusually high level throughout the year, reaching its highest point at almost 800 tons in August, the highest monthly average on record. It is significant that this improvement was made in spite of the fact that there was no improvement in the average load per freight car compared with 1924, the average for both years being 27 tons, in contrast with 27.9 tons in 1923. This decrease is largely attributable to the heavy increase in the movement of manufactured and other light-loading goods. While the total freight revenues of the roads showed a decrease from $4,606,720,192 in 1923 to $4,551,690,895 in 1925, the freight revenue per freight-train-mile was $7.43 in 1925 as compared with $7.18 in 1923, and the reduction in the number of freight-train-miles run was largely responsible for the reduction in operating expenses which made it possible to show a greater net in 1925 than ever before in spite of the reduced earnings.

Almost 100 *Per Cent*

FOR a long time the Car Service Division of the American Railway Association has been issuing weekly statements showing a large surplus of freight cars and almost no car shortages. These are published in the newspapers and the fact is very generally known. The Car Service Division also compiles another statement semi-monthly, which does not receive the same publicity, which brings home the fact in an even more striking way. It is entitled CS-62a, "Percentage of Orders Filled for Class I Roads." A copy of this bulletin for the fifteen-day period ended March 15, 1926, fell the other day into the hands of one who had not noticed it since the days when he used to use it to check against statements of coal operators that he saw in the newspapers to the effect that they were receiving only a 50 per cent or less car supply. At first glance it seemed to be a solid page of initials of railroad companies followed by a succession of columns filled with the figures "100." A closer inspection, however, showed that while half the page was entirely 100's there were one or two figures less than 100; indeed a careful check showed ten such cases. These were not ten railroads, however, but ten places on a page made up of seven columns, for the different classes of cars and the total, for some 130 railroads, switching and terminal companies not being included. Five railroads failed to have an unbroken succession of 100's after their initials. One southern road had less than 100 per cent for two classes of cars, a northwestern road had less than 100 in two columns, a central western road had a 99 in one column, a southwestern road had a 98 in one column, and one southwestern road had 100 in but one column and four columns ranging from 62 to 99, making its total figure 93.

Rapid Development of Car Retarders

THE story of the car retarder is almost unique in the annals of inventions designed to effect marked changes in railway operating practices. In few instances has success been attained in so brief a period. The basic idea is that of a set of brakes along each side of the rail to clamp on the sides of the passing car wheels to retard the motion of the car. In the original installation in the Gibson yard of the Indiana Harbor Belt in 1924 these brakes were operated by a set of levers, air cylinders and pistons, etc., constructed largely from standard air brake equipment for freight cars. The operation of these retarders was controlled by air, using ordinary engineman's brake valves located in towers adjacent to the track. Later the control was changed to electric circuits so arranged with valves at the retarders as to give a selection of pressures for different degrees of retardation. Early in 1925 this car retarder system was developed to a stage of practical operation for the entire yard including the operation of the switches and skate placing machines. It was then that the anticipated savings in the operation of the yard, the elimination of personal injuries, and a reduction in damage to equipment and lading began to be apparent. For example, the saving in the operating cost of this yard for February, 1925, was $12,623 as compared with that for the same month of 1924. Thus the initial experiments, development and thoroughgoing success of this apparatus occupied less than a year, a performance that is indeed phenomenal. The advantages of car retarders were so evident that the further development, manufacture and sale of the system invented on the Indiana Harbor Belt were taken over by two of the larger signal manufacturing companies. Here, again, exceedingly rapid progress was made, for in a period of eight or ten months the two signal companies developed plans, patterns, castings, forgings for control and operating machines, and installed such systems in three large yards. One company developed the electro-pneumatic apparatus as used on the Indiana Harbor, bringing out new ideas in the control and operation, while the other developed an entirely different system controlled and operated electrically. The rapidity

with which car retarders have been developed from invention to practical manufacture and operation on a large scale within a period of about two years demonstrates what can be done when the economies to be accomplished are as evident as those being demonstrated by car retarder installations in service.

Excess Material Encourages Shortages

RECENT developments in the material and supply situation have produced many illuminating lessons in the control of supplies, but few have a more timely value than one based upon the discoveries that the highest percentages of delays to work resulting from shortages of material are often found on the same roads which are carrying the largest percentages of surplus stock. One of the most striking illustrations of this is found in a report that over 75 per cent of the delays sustained in shopping locomotives on a certain road over a period of several months were assigned to shortages of material, although the value of the stock carried for the repair of equipment on this road during the same period was greatly in excess of even the amount which the railroad considered it proper to carry. It seems paradoxical that these two conditions should exist at the same time. Shortages are the result of insufficient material, rather than of excessive material, and it is only because of the danger of running out of stock that railroads carry as large a balance in reserve as they do. It is evident that the material carried was not the material needed in those instances where the delays occurred, or that the stock of materials was not sufficiently complete to make the use of that which was on hand possible. In other words, the material balance was out of balance. Thus it is that large surpluses of stock may be equally as hazardous as low reserves for they may engender a false sense of security against material shortages that promotes inefficiency in the control of material day by day, without which no amount of material in reserve will prove adequate to prevent the shortages and secure the economical use of material which it is the business of store officers to foster.

Increased Stability of Employment

DURING the last two years the stabilization of employment on the railways has been given a good deal of consideration. In 1924 there was a decline of freight business, but 1923 and 1925 were both years of record-breaking traffic. Usually in the past the number of employees fluctuated not only from year to year but from month to month with changes in the volume of traffic and in earnings. The year 1923 was one of very small fluctuations in traffic. These fluctuations were somewhat larger in 1925. It is interesting and significant, however, that the fluctuations from month to month in the number of employees in 1925 were much smaller than in 1923. The minimum total number of employees in any month in 1923 was 1,783,555 and the maximum 1,973,505, a difference of 189,950. In 1925 the minimum in any month was 1,722,275 and the maximum 1,817,038, a difference of only 94,763. The largest fluctuations always have occurred in the number of men employed on maintenance of track and other permanent structures. Reference is made elsewhere in these columns to the fact that fluctuations in the number of these employees are declining. In February, 1923, the number of maintenance of way employees of all the railways was 326,627 and in August, 471,185, an increase of 144,558. In February, 1925, the number of maintenance of way employees was 329,983 and in August only 431,822, a maximum change for the year of only 101,839. The number of men employed in the maintenance of equipment and stores department ranged in 1923 from 559,331 to 605,120, a difference of 45,789, while in 1925 it ranged from 512,301 to 542,905, a difference of only 30,604. In 1923 the maximum number of all railway employees was about 10½ per cent greater than the minimum, while in 1925 it was only about 5½ per cent greater. The desirability of increasing the stability of employment in all industries as a means of avoiding surpluses and shortages of labor, and of affording all kinds of labor more steady employment, has often been emphasized. Progress in this direction is being made by the railways.

More Bus and Truck Regulation Unlikely at Present

THE possibility of passage by Congress or by the states of additional legislation providing for the regulation of motor buses and trucks operating as common carriers on interstate and intrastate routes appears rather remote at the present time. Additional state legislation this year is virtually impossible since the nine or ten states which do not have laws regulating the operation of their highway carriers almost without exception have no scheduled sessions of their legislatures. The passage of legislation providing for the regulation of buses and trucks engaged in interstate service is of course a matter for congressional action. The enactment of such legislation in this session of Congress has seemed possible on account of the interest in the bill introduced by Senator Cummins on behalf of the National Association of Railroad and Utilities Commissioners. Considerable opposition to the bill developed at the recent hearings before the Senate committee on interstate commerce, however, and the hearing was adjourned temporarily on March 29 so that the committee might consider in executive session whether or not there was sufficient chance for legislation on the subject at this session of Congress to make it worth while to continue the hearings. It is considered by observers close to the situation that there is very little likelihood of any legislation on the bill at this session on account of its highly controversial nature. With the possibility of immediate legislation on bus and truck regulation remote, an opportunity is presented for further consideration of an important question—that of the exact kind of bus and truck regulation which will afford protection to existing carriers from unnecessary competition and at the same time promote to the fullest extent the rendering of really needed highway service. An increasing number of railroads are interested in having such regulation adopted. They have this interest because they are themselves getting into the business. The opportunity for further consideration of this important question during the expected period of legislative inactivity should not be lost. The indications are that it will not be. A movement is now under way which has as its purpose the thrashing out by the parties directly involved of the controversial questions which arise in every discussion of proposed regulation of the motor carriers. The parties involved are the railroads, both steam and electric, the operators of buses and trucks, the manufacturers of highway transport equipment, the government and the public. The organization of a fact-finding committee is now going forward. This committee will have an opportunity to do a constructive piece of work, and it should have the co-operation and support of all those who wish to see the most complete, efficient and economical transportation system possible operating in this country.

Regulation of Security Issues

THE Interstate Commerce Commission, in connection with its regulation of the issuance of railway securities, recently, has rendered some reports that are of unusual significance and importance. The railways have in the past received more bitter and injurious criticism for real or alleged financial mismanagement than for anything else. Nothing else has made it so hard to get regulation under which they could earn a fair return as the prejudice imbedded in the public mind by the attacks upon them for alleged past manipulation of their finances, and especially "watering" of their securities and investment accounts. No provisions in the Transportation Act were adopted with more general approval than those giving the commission authority to regulate the issuance of securities.

In a report made public last week the commission refused to authorize the Chesapeaks & Ohio to "procure authentication and delivery" of about $11,000,000 in bonds. The decision was based upon the ground that this railway is able to raise new capital by the sale of stock at above par and should not increase its bonded indebtedness while it is in this favorable financial situation. Commissioner Woodlock wrote a concurring opinion in which he clearly and forcibly set forth the reasons why railways that can do so should sell stock rather than mortgage bonds.

It has often been urged by railway executives that the railways need fewer creditors and more partners. The average American railroad unquestionably has too much indebtedness in proportion to its outstanding stock. The evils of this situation and the need for correcting it often have been pointed out by spokesmen of the railways who have contended that the remedy is to let the railways earn a sufficient net return to enable them to market stock above par. By its decision in this case the commission has said to railway officers and financiers that when they have opportunity they ought to practice what they preach.

The doctrine of the commission is sound. It is pertinent to add that the present disparity between the total amounts of bonds and stocks outstanding is largely due to the way the railways have been regulated during the last twenty years, and that upon the way the commission regulates their rates in future will largely depend their ability in future to practice its sound doctrine.

In two other recent decisions—in the Van Sweringen merger case and in the Pittsburg & West Virginia case—the commission condemned the proposed issuance of stock without voting power.

One of the most encouraging tendencies of recent years has been that toward the wider diffusion among all classes of the people of the ownership of corporation securities. It has been well pointed out that the road leading to true "industrial democracy" is not that of socialism but that of this wider diffusion of the ownership of property. Not long since, however, Professor W. Z. Ripley of Harvard University began pointing out in addresses and articles which have attracted widespread attention that this road was in danger of being closed by financing which by issuing large amounts of non-voting stock, would deprive many property owners of the power to participate in the management of their property and concentrate control of its management in the hands of only the small part of the owners having voting stock.

The tendency of such financing is toward industrial autocracy and not toward industrial democracy. One of the most important attributes of property ownership is the right to participate in saying how the property shall be managed. It has been said that the right to vote stock is of no use to many thousands of widely scattered stockholders because ordinarily they do not exercise it. That they do not ordinarily exercise it is no good reason for depriving them of it. Furthermore, a long unexercised right to vote stock is exercised occasionally in such a way as to change the entire control and management of large corporations. One of the main bulwarks of capitalism against the assaults of socialism would be destroyed if large corporations were allowed to use the device of issuing non-voting stock to such extent as would place their control irretrievably in the hands of persons owning a comparatively small amount of voting stock.

In both the Van Sweringen and Pittsburg & West Virginia cases, however, the question presented related solely to the issuance of non-voting preferred stock. This, it must be admitted, is widely different from the question of issuing non-voting common stock. The owner of preferred stock has rights that the owner of common stock has not. In virtually all cases a prescribed dividend must be paid on all preferred stock before any at all can be paid on common. In many instances preferred dividends are cumulative from a certain date and must be fully paid up at a fixed annual rate before any dividend on the common can be paid. In the two cases mentioned the commission ruled against the issuance of non-voting preferred stock as contrary to public policy. Certainly it is very questionable whether public policy requires that preferred stock, with its special and prior rights, should also have the same voting power as common stock.

At the same time the fact must be recognized that the issuance of large amounts of non-voting preferred stock does tend to concentrate control of management in a small part of the total capitalization. For example, if one-half of a railway's capitalization is bonds, which of course cannot vote, and one half of its stock should be made preferred stock without voting power, the remaining one-half of the stock, representing only one-fourth of the capitalization, would have all the voting power. Owners of slightly more than one-half of this voting stock would then control the management, although their stock would represent only slightly more than 12½ per cent of the total capitalization. It can hardly be contended that it would be desirable for large corporations generally, and especially railroads, to be so capitalized as directly to result in such centralization of control.

One question that arises regarding the commission's decisions in these cases is as to whether it has not exceeded its legal power, especially in its rulings against the issuance of preferred stock without voting power. Another is as to whether it has not gone too far in substituting its own judgment regarding railway financing for that of the boards of directors of the railways. The commission was given authority to regulate the issuance of securities to protect the public interest, and particularly by preventing excessive amounts of securities from being issued or the funds thereby raised from being improperly used. As long as the railways are under private ownership and management the stockholders, directors and managers should be allowed to exercise a wide discretion in financial as well as other matters. There is needed at times constructive criticism of the way railway boards of directors exercise or propose to exercise their discretion, and no public official or body is so competent to give such criticism as the commission. Its criticisms and suggestions regarding railway financing would carry great weight. There is a wide difference between offering criticisms and suggestions and, in cases where the public interest is not entirely clear, prohibiting the stockholders and directors of a corporation from doing what they believe to be wise.

The commission in these cases has given the authority conferred on it by the law an extremely broad interpretation, and it will be interesting to observe the influence exerted by its decision upon railway financing.

Wage Negotiations Under New Conditions

THE negotiations now going on between representatives of the railways and of the train service employees regarding wages are being conducted under different circumstances from any past similar negotiations. Both business conditions and the public sentiment being manifested are different.

Until within recent years public sentiment regarding railway wage controversies almost always was favorable to the claims of the employees. Most persons and especially farmers as a class, were prejudiced against the carriers. They believed most railways were overcapitalized and inefficiently operated and so rich that the only effect of an advance in wages would be to reduce swollen profits, and they thought they would be glad to see the employees get all they could. They did not anticipate that changes in wages would affect rates. Experience long seemed to warrant this attitude. For more than a decade previous to government operation wages increased while the tendency of rates was downward.

The last ten years have been a period of disillusionment of the public. The wages as well as the prices paid by the railways increased very rapidly in the five years ending with 1920. This, under both government and private operation, compelled large advances in rates. Following the precipitous decline of commodity prices and business that began in 1920 there was a powerful demand for reductions of rates. Railway labor leaders, in their efforts to promote government ownership, championed this demand and tried to convince the public that the great obstacle to reductions of rates was the so-called "guarantee" of net return given the railways by the Transportation Act. The railways were forced in self-defense to do an immense amount of educational work to show the public that the real obstacle to reductions of rates was their greatly increased operating expenses which were mainly due to advances in wages.

Reductions of both wages and rates have been made since 1920. The reductions of rates have not satisfied the farmers and they have tried constantly to get further reductions on their products. Decisions of the Interstate Commerce Commission refusing to grant these further reductions have been based upon the ground that operating expenses have been too high and the net return being earned too low to warrant lower rates. Finally the railways of western territory, from which most farm products come, have sought a general advance in freight rates because their operating expenses are so high in proportion to their earnings they are unable to earn anywhere near a "fair return."

This long, important and continuous series of developments has given the public a new understanding of the relationship between wages and rates. It knows now that the wages the railways pay do and must largely determine their rates. No class of people is showing more plainly than the farmers that it realizes that the way the present controversy regarding wages is settled will affect rates. This understanding on the part of the farmers has been very definitely indicated by the demand of spokesmen of the American Farm Bureau Federation and the National Grange for an amendment of the Watson-Parker bill which would require the Interstate Commerce Commission to review advances in wages made by agreement or arbitration and to set them aside if in its opinion they would tend to make rates excessive.

In this new situation the railways are between two fires. They want the employees to be satisfied with their working conditions and wages, and they want the public to be satisfied with the transportation service rendered and the rates charged. They may have trouble with the employees if no advances in wages are made, and they may have trouble with the public if any wage advances are made. The problem presented to the western lines is especially difficult. The east, and to a less extent the south, are industrial territories. Their population includes workingmen in numerous industries who are about as highly paid as railway employees. They are enjoying comparative prosperity. Even their farmers are relatively prosperous. Their railways are sharing in this prosperity by earning net returns approximating what the Interstate Commerce Commission has held reasonable.

The west is much more largely an agricultural territory. In a great part of all its communities railway employees are the only highly paid workingmen. In the midst of rural communities, most of whose farmers believe, and seemingly with reason, that they are suffering adversity as compared with most other people, the wages of railway employees stand out so prominently that the farmers complain about them. Now, when the western farmers are opposing proposed advances in rates on their products, railway employees have come forward with a demand for still higher wages, the effects of which on rates and comparative incomes the farmers are not slow to anticipate.

The situation would be different if it were not for the fact that the railway labor unions have insisted successfully in the past, and undoubtedly will insist in future, that, regardless of differences in conditions, employees doing the same kind of work must be paid the same wages in every territory. This being the case it is necessary to consider the effects that probably would be produced upon public sentiment and regulation by an advance in railway wages throughout the country. It is especially important to consider the effects that would be produced upon public sentiment in western territory. Everybody familiar with the history of railway regulation knows that public sentiment in the west has exerted an influence upon government regulation greatly out of proportion to the population of that territory. This is because sentiment in the east regarding railway regulation usually has been comparatively mild, and in the south less mild, while in the west it always has been hot and aggressive and, therefore, effective.

Any advance in wages made by agreement and applicable on the western lines would be so resented at the present time by western farmers that it probably would be impossible for spokesmen of the railways successfully to defend it and the freight rates that it would make necessary. Past experience indicates that railway labor leaders and employees who follow them would not defend the effect that would be produced on rates, but, on the contrary, would attempt to show that advances in wages did not warrant advances in rates. If advances in wages were made in conformity with an arbitration award the railways would be on safer ground in trying to defend them, but even then the public would not be satisfied. It is highly significant that farm leaders are seeking legislation that would in effect place the regulation of wages as well as rates under the Interstate Commerce Commission. However undesirable such legislation might be, past experience indicates that if the farm organizations of the country should make a determined fight for it they would get it.

It is in these circumstances, and with such prospective public sentiment and regulation, that the wage negotiations are being conducted. The railways must consider them, and it would be very foolish for the labor leaders to ignore them. Railway managers should squarely face the question whether, as a matter of sound economics or of equity, the employees or those who pay passenger and

freight rates are, under present conditions, more entitled to consideration. They should especially face squarely and weigh candidly the respective claims and conditions of railway employees on the one hand, and farmers on the other. Wisdom dictates that railway labor leaders and employees do likewise. Labor leaders are at present trying to mislead employees into the belief that proposed advances in wages could be made by a reduction of present railway "profits." They cannot get the public to believe this. The propaganda they have carried on for years to convince the public that wages and rates do not have to be considered together has been a failure because it has been refuted by the effects actually produced upon rates by changes in wages. Increases in the efficiency of operation recently have made possible both gradual advances in wages and reductions of rates at the same time, but efficiency cannot be increased fast enough to prevent large sudden advances in wages from causing either ruinous reductions of the net return of the railways or large advances in rates. The public now understands this thoroughly, although labor leaders, who are poor judges of public sentiment, do not seem to know it.

The situation demands careful consideration of the sentiment, interests and rights of those who pay railway rates by both railway managers and labor leaders. The labor leaders long have been seeking freedom from wage regulation by the Railroad Labor Board. A majority of railway executives have joined them in drafting and supporting the Watson-Parker Bill. The wage demands meantime being made by some of the labor leaders are extremely unreasonable. If they follow an equally unreasonable policy in supporting them it seems not improbable they will have to face anti-strike and wage fixing legislation that they will like even less than they do the labor provisions of the Transportation Act.

Are the Railroads Conservative Concerning Grade Separation?

EXPONENTS of grade separation as a cure for grade crossing accidents, like the enthusiasts for automatic train control, are given to frequent criticism of the railroads for what they deem a lack of enterprise on the part of the managements in this regard. They argue that the savings to accrue to the railroads from grade separation work through the elimination of crossing protection and the avoidance of damage claims would amount to more than the interest charges on the necessary appropriations for such work. They intimate also that the railroads are shirking a moral responsibility which it is felt that they must assume for the frightful loss of life at highway crossings.

Considered as a safety measure grade separation is like train control in that it involves heavy expenditures for what is presumed to afford perfect protection within the limits of the stretch of track upon which the improvement is carried out. It cannot be made all-inclusive without an outlay of an enormous amount of money. The expenditure of many hundreds of millions of dollars will serve to eliminate only a part of the crossings. However, it is only the most unreasonable of the advocates of grade separation who contend for what might be termed wholesale elimination of grade crossings. It is at the crossings carrying heavy traffic where the danger of accidents is especially great and the cost of protecting grade crossings is heavy, that the grade crossings should be eliminated at once, according to the exponents of grade separation, and it is at such crossings that the railroads should expect a handsome return for the money expended.

However, as a profit earning investment, grade separation is not on a parity with other possible improvements to the railway plant. Railway executives have frequently stated that the opportunities for improvement offering a return of at least 25 per cent on the investment are in sufficient volume to command all the funds which they are able to raise. It is not often that a grade separation project would come within this class.

Many states recognize fully that the cost of grade separation should be borne in part by the state or the municipality or both, but it is argued by some that the division of the expense is immaterial because the total cost in the end must be borne by the public, either in the form of taxes or in increased cost of railway transportation. The fallacy of this contention should be evident to anyone who will take into consideration the fact that much of the increased hazard at highway crossings is due to the change in character of highway traffic brought about in large part by the improvement of public highways by means of taxation. This improvement has resulted in a competition with railway transportation. Therefore, if the railroads are to bear the major part of the burden of providing increased safety of highway traffic at railway crossings, they will be virtually contributing to what is now their most formidable competition, under which head must be included not only the motor bus and the motor truck, but also the private automobile.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Abraham Lincoln—the Prairie Years, by Carl Sandburg. Page references to railroads in Lincoln's day, and his connection with them are given in the index of this important biography. 2 vols. illus. maps. Published by Harcourt, Brace & Co., New York. $10.00

Laws of the United States Relating to the Improvement of Rivers and Harbors from June 23, 1913 to March 4, 1925, compiled in the Office of the Chief of Engineers, U. S. Army. House Doc. no. 347, 67th Cong., 2d sess. Indexed. 389 p. Pub. by Govt. Printing Off., Washington, D. C. 30 cents.

The Origin of the Next War, by John Bakeless. Especially Chap. 12, "The Weapons of the Next War" for its comment on railroad, aerial, and other forms of transport. 318 p. Pub. by Viking Press, New York. $2.50.

Statistical Atlas of the United States, 1924, compiled by U. S. Bureau of the Census. The last published was that for 1914. 476 p. Pub. by Govt. Print. Off., Washington, D. C. $2.00.

Periodical Articles

Builders of a New Empire, by Lloyd Legler Evans. An illustrated account of what the Great Northern is doing to encourage the junior livestock growers in its territory, including tours and trips. Success, April, 1926, p. 48-51.

How Ford Wins Loyalty of Railroad Men, by Edward Hungerford. Forbes, April 1, 1926, p. 18-20, 50-53.

Railroad Expansion in the South, by Samuel G. Wilmer. Particularly and in various ways in the last four years. American Review of Reviews, April, 1926, p. 401-405.

A Short Cut to the Solution of Floodlighting Problems, by H. E. Butler. The illustrations show several uses of floodlighting including that in a railroad yard. General Electric Review, April, 1926, p. 260-267.

Some Recent Stress Analyses by Means of the Photoelastic Method, by Paul Heymans. History of method accompanied by references to additional material. Engineering Journal (Canada), April, 1926, p. 193-198.

"That Man Atterbury," by Sherman Rogers. Impressions of the President of the Pennsylvania. Success, April, 1926, p. 22-24, 94, 96.

Letters to the Editor

[The RAILWAY AGE *welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]*

Boiler Pitting

RICHMOND, Va.

TO THE EDITOR:

I should like to refer to the article by D. A. Steel entitled "Pitting—A Myth or a Menace" which you published in your issue of February 20. The article is one which should receive the special attention of all railway officers and employees interested in the effect of water on locomotive boiler performance and maintenance, because it is the most complete summary which has been published in connection with this problem.

The main point brought out in this article is the fact that the remedy for pitting and corrosion in locomotive boilers is not as mysterious as ordinarily appears. A survey of the study given this subject during the past sixty years has developed that there are eight fundamental factors involved, any one, or all, or any combination of which may cause or accentuate the pitting trouble. Arithmetical consideration of combinations indicates that 176 possible situations can be developed from eight factors. This indicates the necessity for careful and full investigation of the individual cases in order to determine the proper and economical remedy.

A large handicap in the successful solution of the pitting problem has been uncertain records, incomplete investigation and premature conclusions. If cases of pitting are of sufficient importance to warrant detailed study by specialists trained in this work, experience has shown the trouble can be largely alleviated if not entirely overcome.

R. C. BARDWELL,
Superintendent of Water Supply, Chesapeake & Ohio.

BALTIMORE, Md.

TO THE EDITOR:

The article appearing in the *Railway Age* of February 20 entitled "Pitting—A Myth of Menace" has been read with considerable interest. Inasmuch as maintenance costs due to corrosion are one of our largest items of expense, I feel that a great deal will be accomplished by a very thorough study of the subject.

Personally, I am of the opinion that most of the corrosion can be overcome by de-aerating the feed water. We have been working along such lines for the past three years. We determined, first through laboratory tests, that water heated to a temperature of 200 to 210 deg. F. for a period of 10 min. would be completely de-aerated. We then designed an open type heater of sufficient capacity to supply a boiler working to full capacity for a period of 15 min. Before the heater was applied to a locomotive boiler, we made a series of tests, heavily charging the water with oxygen gas before it was delivered to the heater and analyzing it after it passed through the heater. These tests were so conclusive that the apparatus was applied to a locomotive and the results obtained so far have been very gratifying, although we have not as yet completed our tests.

GEORGE H. EMERSON,
Chief of Motive Power and Equipment, Baltimore & Ohio.

Whistling at Crossings

CHICAGO.

TO THE EDITOR:

The article by J. L. Walsh in the *Railway Age* of March 20, page 844, concerning the use of whistle signals at crossings, seems to call for some mathematics.

It has been some few years since I have listened to an engine whistle from a seat in the cab, and I have not tried to beat any trains to a crossing with the well-known car, but I cannot agree with Mr. Walsh that whistling posts should be placed only 500 ft. from the crossing.

With a train traveling 30 miles an hour and a motorist going at the same rate on a country road (moving at a right angle to the railroad) there would not be a reasonable amount of time for the motorist to hear, heed and act on the signal. And there are all the familiar variations of angles of roadway, speed of trains and conditions of atmosphere. If the motorist were to wait for the completion of the crossing signal, he would have, in many cases, no time at all to collect his thoughts and act.

Possibly flags or something visible to the eye might be better than the whistle; but if the whistle is to be used, there should be ample time between the last blast of the warning signal and the time that the engine reaches the crossing, to permit the motorist to stop his car.

Why do we not more fully recognize that sight is more dependable than hearing? Why not arrange suitable (fixed) daylight electric signals, visible for a mile along the highway? Undoubtedly there are more people driving automobiles who have defective hearing than there are who have defective sight; that is, sight sufficiently defective to be considered hazardous. The electric signal, so placed that the motorman must see it, is the desideratum, everywhere.

L. H. SCHUYLER.

BUFFALO, N. Y.

TO THE EDITOR:

Your correspondent of March 20 (page 844) who speaks for the Missouri-Kansas-Texas, seems to have in force a tolerably satisfactory rule for whistling at highway crossings, yet he is calling for something different, suggesting a change in the law. He wants whistling posts nearer the crossing, and seems to desire almost continuous noise; and this wholly for the benefit of restless motorists (and for the annoyance of thousands of unoffending citizens).

Where the usual sounding of the whistle at 80 rods from the crossing is not deemed a sufficient warning there is no better way than to repeat *the same warning* at 60 rods, or 40 rods; or at as many intermediate points as may seem *to the engineman* to be necessary. There is no use in trying to formulate a general rule, to print in the book, to cover all situations. The engineman must be trusted. With a train moving at a mile a minute, even more than 80 rods may sometimes be necessary.

Why tell the engineman to lengthen or otherwise modify the blasts? Too much steam is wasted on whistle blasts already. As your correspondent suggests, the engineman has too much complication of instructions under present regulations; more are not needed. Give him fewer details to think of. Remember the farmer, the invalid, and women caring for babies who must be kept quiet; these and other people who have to spend their lives in houses near the railroad. The automobilist who is trying to get his wagon smashed and himself killed is not the only American.

The suggestion to put whistles farther front on the locomotive is approved by every competent person who examines the question with care. Professor A. L. Foley,

in your issue of December 5, last, set forth the whole subject in masterly style. (Incidentally the best modern improvement in highway crossing safety is illustrated in another article in that issue of the *Railway Age*. Turn back and look at it; page 1042).

A reflector can throw sound forward as surely as it throws light forward.

Do not worry about the audibility of whistle-blasts in the seventh car back from the locomotive. The accident-reports of the Interstate Commerce Commission are constantly showing up cases where whistles are sounded on fast moving passenger trains (as well as on freight) and are not noticed at all on the train. Numbers of brakemen, porters and other persons riding in the cars will testify that they "never heard a thing." The truth is that in modern practice, under conditions as they exist today, the whistle is not a thing to be exclusively depended on. A prominent signal engineer has said that audible signals, as a safeguard at highway crossings, are no longer to be depended on. He wants none of them. The action of the signal engineers' convention confirms this view.

It is important to keep in mind that the automobilist is primarily responsible *for seeing where he is going*. The assumption that the railroad company must bear the brunt of every burden is being carried too far. With an adequate sign-board at the side of the highway, 300 ft. from the crossing, every driver is just as fully responsible for his own safety when he crosses the track as he is at other parts of his journey.

E. ADAMS.

How Do Transverse Fissures Start?

WASHINGTON, D. C.

TO THE EDITOR:

Referring to your editorial comments in the *Railway Age* of December 5, 1925, and references in subsequent issues to the prevalence of transverse fissures in steel rails, recent disastrous derailments due to this type of fracture have again brought the subject to prominent notice. It brings up for earnest consideration the dangers which at present lurk in the track, which at any moment may cause a repetition of these serious derailments of recent occurrence. Are they being guarded against, and if so, in what manner? Is anything being done, or can anything be done, in addition to superior maintenance of track, in which automatic signals are important adjuncts? An interior fissure does not admit of detection by any method yet introduced. Through vigilance, transverse fissures are being detected upon the appearance of minute hair cracks on the periphery of the rail head. When the fracture of the rail is complete the automatic signals generally give warning of the break in the continuity of the track. Well-spiked rails on sound ties constitute all visible evidence of safety, but cannot reveal what the interior conditions of the rails are.

Mr. Ray's remarks, in your issue of January 23, are very pertinent, and no doubt represent the views of many users of rails, also closely coinciding with those of the writer. Mr. Ray says, "For one, I am quite willing to admit that wheel loads have much to do with the formation of transverse fissures, and after they are once formed, are entirely responsible for the development of these fissures."

The gist of the matter, at one stroke, is thus directed to a consideration of what antecedent condition or state of the rail is responsible for the inception of this type of fracture, assuming that wheel loads taken alone are inadequate to cause the formation of a transverse fissure. Attention is directed to the display of shrinkage cracks, in the central core of the head, as an antecedent condition, presenting nuclei for the development of interior fissures. This is a promising explanation for the loci of some transverse fissures, many in fact, but not all.

Encouraging as this thought is at first glance, still there remain important questions unsettled. Primarily, do shrinkage cracks shorten the life of the rail, and if so, in what degree? What are the relations, if any, between transverse fissured rails 30 years old or even 10 years old, in comparison with rails which display transverse fissures when only a few months old.

Shrinkage cracks represent a relief of internal strains. Does this act constitute an easement, as it were, and facilitate rupture of the rail through subsequent cold rolling effects of the wheel pressures? Tentatively accepted as one of the components which tend to cause interior tensile fractures, at what stage does its influence reach a maximum? Is it when shrinkage strains are greatest or after they have partially expended their effort by reason of the cracking of the steel?

It will be recognized, when speaking of shrinkage strains, that reference is made to a condition which affects rolled, forged and cast shapes; a condition experienced by all rails, and not peculiar to those which display transverse fissures. Laboratories which make a practice of examining the structural state of fissured rails may be in position to supply pertinent and cumulative data on these points.

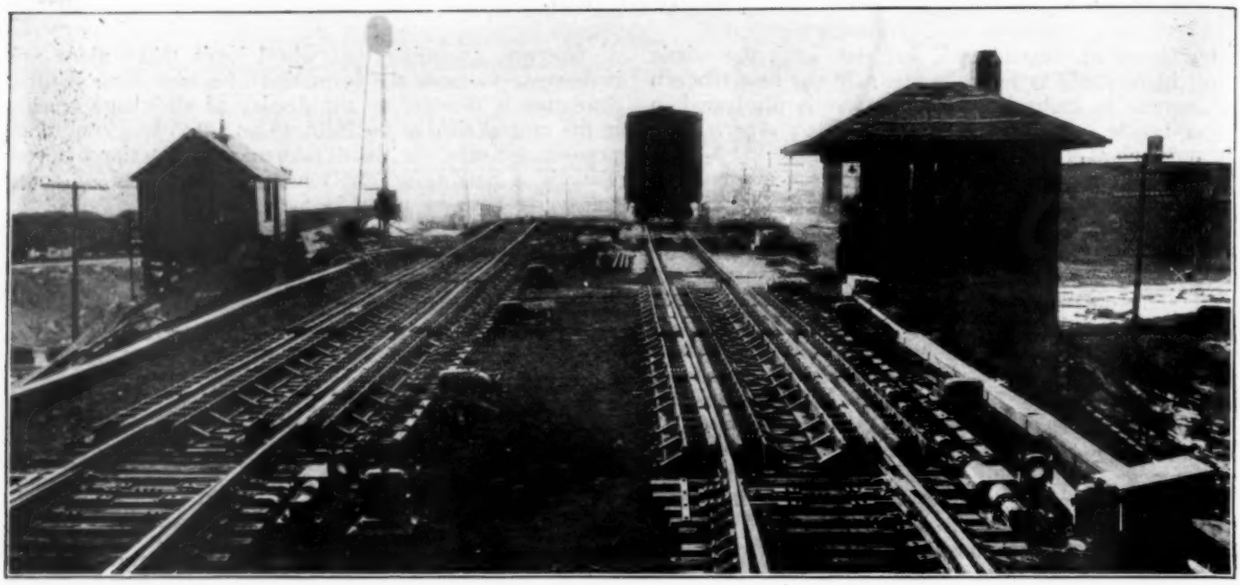
In dealing with interior conditions some assertions of this nature do not admit of direct proof, nor on the other hand can they be directly disproved. In the examination of fractured rails the investigations are not always extended to parts remote from the fractured surfaces, nor have corresponding efforts been directed toward ascertaining the structural state of rails which have endured long service without the display of transverse fissures. Opportunities for acquiring such data have been open but not availed of.

An interesting query concerns the relative effort required to extend a shrinkage crack of limited extent and the effort which would be required to start a new crack, aided or unaided by a pre-existing internal cooling strain. In the latter stages of the development of a transverse fissure, at the period when all agree that the extension of the fissure is due entirely to the action of the wheel pressures, the necessary force must be less than at the outset. The question therefore is whether there is a substantial difference in the force initially required to start a transverse fissure, a shrinkage strain or crack being present or not.

The crucial instant is when the transverse fissure begins to grow, whether antecedent conditions have effaced a pre-existing margin in strength or whether track stresses at that particular time exceeded the normal strength and resistance of the rail. It is not to the point whether one rail displays a transverse fissure and another does not, but why does a fractured rail fracture? Where wheel pressures are mentioned reference is made to the influence and effects of the intense impinging pressures at the contact surfaces of the treads of the wheels and the running surface of the heads of the rails. Here lies the crux of the situation, and here is located, practically, the entire rail problem.

Thanks are due the *Railway Age* for giving prominent notice to this important subject.

JAMES E. HOWARD,
Engineer-Physicist, Bureau of Safety, Interstate Commerce Commission.



View Looking Up the Hump Showing the Retarders on the Two Tracks and the Signal at the Left

Car Retarders on Illinois Central

Union Switch & Signal Company electro-pneumatic equipment in service on northbound classification yard at Markham

THE Illinois Central, following its usual policy of planning for the present and future needs of the Chicago Terminal district, has built a complete classification yard, known as Markham yard, at Hazelcrest, Ill., near Chicago. The northbound Markham yard, with which this article is particularly concerned, was

End View of Car Retarder with Electro-Pneumatic Switch Machine in the Foreground

opened officially on March 8, 1926, and is working two tricks every day. The anticipated business can be easily handled in two shifts as the capacity of the system is about 1,200 cars per shift, with a possible maximum capacity of about 1,600 cars.

The receiving yard is composed of 12 tracks, the longest holding 110 cars, the total capacity of this yard being 1,040 cars. The classification yard consists of 79 tracks, 60 of which are being used for classification. The longest track has a capacity of 40 cars, and the entire classification yard, 2,570 cars. The departure yard consists of 10 tracks with a total capacity of 800 cars, each track holding 80 cars.

Plate fulcrum scales of the latest type, including an automatic recording device, are provided at the hump. The height of the hump may be varied by means of a five-section hydraulically operated mechanical hump, so that compensation is provided for varying weather conditions. Markham yard is lighted by batteries of floodlights placed on steel towers from 90 ft. to 120 ft. high, there being 10 of these towers. The general result is such aht night is no handicap to operation.

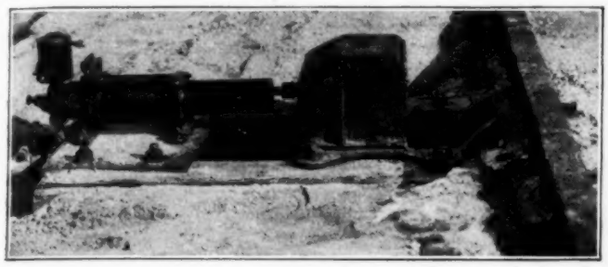
At the time this yard was decided upon, the most modern practice for classification yard operation was the use of power operated switches, controlled from one tower for the whole yard. Accordingly, the necessary apparatus was ordered, consisting of electro-pneumatically operated switches and the usual push-button machine, air lines, etc., associated with such an installation. Prior to the completion of the classification yard, however, George Hannauer, vice-president of the Indiana Harbor Belt, had successfully demonstrated the advantages and practicability of the electro-pneumatic car retarders in the Gibson yard* of that terminal carrier as a means of eliminating car riders. In order to effect this economy in the Markham yard, it was decided to install car retarders and arrangements were made accordingly.

Car Retarder System on Northbound Markham Yard

The car retarder system includes the retarders themselves, the power operated switches, power operated skate

*For description of car retarder system on Indiana Harbor Belt see *Railway Age* for November 15, 1924, and May 9, 1925.

placing mechanisms, control machines housed in five elevated towers located at various points in the yard, power supply and compressed air. The number of retarders, their locations, and the grades that should be provided were developed by the Illinois Central engineers. The grades are such that a car, under the most free running



Electro-Pneumatic Skate Placing Mechanism

conditions, will not accelerate after leaving the last retarder. The apparatus was furnished by the Union Switch & Signal Company.

Control Machine of New and Unique Design

The electro-pneumatic car retarder system control machine governs all the retarders, switches and skates within the control limits of its particular tower. It is so constructed that the operator may either stand or sit before it and still have an unimpaired view of all cars moving down the yard. The top row of control (a switch somewhat like a telephone switch) governs the skate placing mechanisms. The two middle rows of controls govern the retarders. These controls have six positions—off, exhaust, and one for each of the four pressures used to obtain various degrees of retardation. The control unit is so arranged that each of these positions is positive.

The bottom row of controllers governs the track switches. Each of these controls is a two-position switch, one position for the track switch "normal" and one for switch "reversed." A track diagram is mounted in each tower which shows not only the track arrangement controlled by that tower, but also the location of the retarder, as its name indicates, reduces the speed of the tion of the switches.

Construction and Operation of the Car Retarder

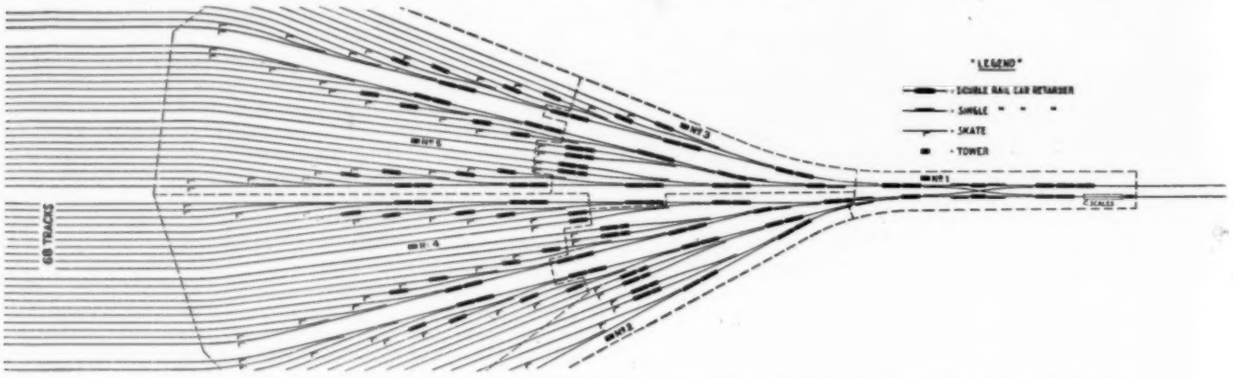
The car retarder is an arrangement of brake-shoes located along and parallel to the track rails, which shoes are forced against the inside and outside faces of the car wheels by compressed air acting on a piston, which, through levers, transmits the force to the brake-shoes. The effect on the car is the same as if either the hand brake or the air brake had been applied; that is, the retarder, as its name indicates, reduces the speed of the car. The cylinder and leverage arrangement for operating the retarders is simply the "live lever"—"dead lever" arrangement of the foundation brake gear of a freight car, and by means of which the forces of reaction against the cylinder are completely balanced, and there is no tendency of the cylinder to move. Release is accomplished pneumatically (instead of by a spring as in the car brake cylinder) but, due to the trunk piston construction used, requires only half the amount of air that is required for application.

The admission and release of the air in the retarder

General View of Northbound Classification Yard Looking North Down the Hump, Four of the Control Towers Being Shown

cylinder is controlled electrically. Four retarding pressures are used—25 lb., 50 lb., 75 lb., and full pressure (about 90 lb.). The moving of the control lever in the operating machine to any one of the four operating pressure positions completes the control circuit, thus energizing the admission magnet which operates a valve that establishes communication between the air supply and the operating cylinder which, forcing its piston out, causes the retarder shoes to exert pressure against the car wheels. This pressure in the operating cylinder builds up almost instantaneously until it reaches the pressure corresponding to the contact made by the control lever when the pressure controller contact opens, thus breaking the circuit and de-energizing the admission magnet whose valve then closes, cutting off the supply of air to the cylinder.

If the operator finds that he is not using sufficient pressure, he moves the control lever to the contact corresponding to a higher pressure, when the above operation is immediately repeated, except that the pressure builds up from the pressure formerly obtained, instead of from zero. It is to be noted that this change in pressure, and hence change in retardation effect, is obtained without necessity of further movement of the brake-shoes.



Track Plan of Northbound Classification Yard Showing Location of Towers, Car Retarders and Skates

Control Machine in Tower No. 4—Skate Levers at Top, Retarder Levers in Middle and Switch Levers at Bottom

The movement of the control lever that results in energizing the admission magnet, also energizes the exhaust magnet. This, through its valve, closes communication between the operating cylinder and atmosphere, and the circuit is so arranged that whenever the control lever is in position to establish pressure in the operating cylinder the exhaust magnet is energized, thus assuring no loss of pressure.

If the operator finds that he is using too much pressure, he can entirely release the apparatus by moving the control lever completely to the left, which de-energizes the exhaust magnet, thus re-establishing communication between the operating cylinder and the atmosphere and exhausting the air from the operating cylinder. This position of the lever also energizes the release magnet which, through its valve, establishes communication between the air supply and the release side of the piston, forcing the piston back and bringing the retarder shoes to the open position. Or, if the operator does not desire to release the apparatus entirely, he can push the button in the control lever which de-energizes the control magnet and exhausts the air from the operating cylinder, but only for as long a period as he holds the exhaust button open. When he releases the exhaust button the air immediately builds up again in the operating cylinder to the pressure

Close-up of Car Retarder Operating and Control Mechanism

corresponding to the contact made by the control lever.

The switches leading to the various classification tracks are operated by electro-pneumatic mechanisms that are equipped with the Style-C cut-off valve, which gives the maximum economy of air consumption consistent with proper and positive operation.

Skate Machines Prevent Cars From Running Away

On each classification track, about 50 ft. beyond the last retarder, a skate placing mechanism is installed. A skate, or skid, as is well known, is merely a device for stopping a car in an emergency. It is a casting, or forging, which is placed on the rail in front of a car so that the leading wheel of the car is caused to mount it and slide it along the rail, the sliding friction being so much greater than rolling friction the car soon comes to rest.

The skate placing mechanism is a simple arrangement of levers by which the movement of a piston in a small cylinder places the skate on the rail when the piston moves out and removes it from the rail when the piston goes back. The admission and release of air for this cylinder are controlled by one magnet, which, when energized, admits air to the cylinder, forcing its piston out and thus placing the skate on the rail. When this magnet is de-energized the cylinder is open to the atmosphere and a spring forces the piston back. This mechanism is so constructed that the skate is entirely free to move out of the mechanism without damage.

Signals Direct Train Movements

Movement from the receiving yard over the hump is controlled by signal indication. At approximately the crest of the hump a three-light, color-light signal is located, controlled from a special controller at the yardmaster's office at the crest of the hump. This signal gives four indications—green, "hump fast"; yellow, "hump slow"; red, "stop"; and red and yellow, "back up." There is another controller—a so-called master controller—located in the retarder tower at the foot of the hump, that must be in the "clear" position for the signal to give any indication other than "stop." Repeater signals are located in the receiving yard so that the crew of the hump engine can always observe the signal indication.

The power house contains two 675 cu. ft. capacity air compressors to supply the compressed air and a battery to provide the electrical energy for control of the operation of the retarders.

The operation of the retarder system is simple. A copy of the switching list is furnished to the yardmaster at the hump and to each of the retarder operators who are located in the five operating towers. This list shows the car initials and numbers—in the order in which they will be pushed over the hump—and the track to which they should go. The list also shows whether the car is empty or loaded, and, if loaded, either the approximate weight or the kind of load, such as sand, brick, lumber, coal, etc. With this list in front of him it is an easy matter for the operator to direct each car into its proper track, and by means of the retarders to control its speed so that it couples to the cars already on that track at just the proper speed—that is, a sufficient speed to insure coupling, but not great enough to cause damage to either car or lading.

Loud speakers and microphones are located in each tower and at the yardmaster's office, so that changes to be made in the switching list due to bad order cars, changes in destination, etc., may be communicated promptly. By means of these loud speakers any unusual condition can also be immediately communicated to such towers as may be concerned.

72 Senators Said to Have Promised Votes for Labor Bill

WASHINGTON, D. C.

SOME predictions have been made in Washington recently that the Senate would not act on the railroad labor bill at this session because of the prospect of time-consuming opposition to it which would delay plans for an early adjournment. Senator Smoot is reported to have made such an assertion during a call at the White House last week, but at the White House press conference on April 9 it was stated that the President hoped the bill would be taken up and acted on. There have been no estimates that there is sufficient opposition to the bill to defeat it outright, but toward the end of a session the mere threat of a filibuster or extensive opposition oratory is often almost as effective as an actual one. However, chairman Watson of the Interstate Commerce Committee, and other leaders in the Senate have said the bill will be passed.

Donald R. Richberg, counsel for the railroad labor organizations, called on the President on April 10 to urge him to use his influence to bring about the passage of the bill.

After leaving the White House, Mr. Richberg stated that he had given the President the following information:

"(1) We have the positive personal assurances of 72 senators that they will vote for the railway labor bill which passed the House March 1 by a vote of 381 to 13. Less than half a dozen senators have stated that they were opposed to the bill. We are positive that it will be passed by an overwhelming majority whenever it is brought to a vote. And this opinion has been stated by the same few senators who have expressed opposition to the bill.

"(2) The bill was reported favorably to the Senate by Chairman Watson of the Committee on Interstate Commerce on February 26 and no minority report was filed. The steering committee of the Senate has placed the bill on the calendar upon which will be considered in this order: The Italian debt settlement, the public buildings bill and then the railway labor bill, and we have been assured that there was no possibility of a change in this program.

"(3) We do know, however, that the manufacturers' lobby working under cover of certain farm organizations, finding that it would be impossible to defeat the bill upon a vote, are seeking to have consideration of the bill delayed so that a vote will be impossible at this session. We know that the bill will be voted on at this session unless those who have announced their support of it permit it to be sidetracked contrary to their positive assurances of support.

"I was particularly requested to tell the President in behalf of the organizations represented that if the very small group opposing this bill should be successful in preventing a vote in the Senate at this session, grave injury would be done to the present harmonious relations between a great majority of the railroads and their employees. It would be very difficult to convince the great mass of employees that they had not been betrayed in their effort to co-operate with the railroad managements and representatives of the public in a program to promote efficient, continuous transportation service. Many railroads and their employees would be required to settle important disputes in the next few months without the aid of government co-operation (as neither group has any confidence in the Railroad Labor Board) and such a destruction of confidence in the good faith of railroad managements or representatives of the public would make the

solution of these problems very difficult. Therefore I asked the President in behalf of the public interest to do all that he might properly do to prevent these unhappy results."

Mr. Richberg added that he did not wish his statement to be construed as reporting, or even intimating, the attitude of the President but he wished merely to make clear the position of the organizations which he had been asked to present to the President.

Senator Watson said that he proposed to move that the bill be taken up at once after the public buildings bill and that "if it is not passed it will be because it is voted down." "We will find out whether there is going to be any filibuster," he said.

It was stated at the White House on April 13 that while the railroads have made their nominations for appointments to the labor group of the Railroad Labor Board for the vacancies which occur on April 15 by expiration of terms, the railroad labor organizations had not sent in any nominations, presumably because they expected the board to be abolished by the passage of the Watson-Parker bill, but that it would be the duty of the President to make the appointments.

The members of the board whose terms expired on April 15 were Ben W. Hooper, public group; W. L. McMenimen, labor group; and Samuel Higgins, management group.

The President re-appointed Mr. Hooper and Mr. Higgins on Wednesday, April 14, and later re-appointed Mr. McMenimen.

Consolidation Bill Reported

WASHINGTON, D. C.

SENATOR CUMMINS on April 13 submitted to the Senate a report on his railway consolidation bill, S.3840, which he recently introduced with amendments following hearings on his original bill, S.1870, at which 318 pages of testimony were taken. The report was submitted with the recommendation of the committee "that it do pass," although he said that the reasons or arguments for its enactment into law have been prepared by its author and have not been specifically acted upon by other members of the committee. If all the railway properties of the United States were owned by a single corporation, Senator Cummins said, the net operating income of $987,000,000 in 1924 would have paid more than 5 per cent upon the value of the properties, as tentatively determined by the commission in 1920, with the capital investments since that time added, and that "this, it is believed, would closely approach a fair return." Passing then to the distribution of this net operating income he said "we come to the real question involved in the policy of consolidation," and continued in part as follows:

Seventy railway companies of Class I, operating 54,000 miles for the years 1922, 1923 and 1924, had an average net railway operating income of less than 3 per cent upon their property investment accounts. Twenty-three of these companies did not earn the cost of operation and maintenance. It is obvious that a railway company which earns less than the expense of operation and maintenance must very quickly cease operation, and it is equally obvious that a railway company which does not earn 3 per cent upon its value cannot furnish adequate and efficient transportation for those who rely upon it for that service. A table, showing the names, mileage, yearly net railway operating incomes and average net railway operating incomes for the three years mentioned, is attached to this report. Thirty additional railways of Class I earned, during these years, an average net railway operating income of less than 4 per cent.

Without taking into account, at the present moment, the economies that may be secured through consolidation, it is submitted, as an inevitable conclusion, that if a process of wise consolidation is not soon entered upon and rapidly carried forward, not less than 60,000 miles, and it may reach 80,000 miles, of our rail transportation system must be either abandoned or at the best will be rendering the most unsatisfactory and inefficient service.

These facts present the chief, though not the only, reason for the passage of this bill. Argument upon these conditions seems to be unnecessary. If the facts are fairly understood, consolidation, in some form, is a foregone conclusion. While the continued and successful operation of all our railway lines is the principal reason for consolidation, it will be borne in mind that many students of the subject believe that great economies, both in operation and in maintenance, would be attained through intelligent and supervised consolidation. Unnecessary train service could be avoided; great overhead expenses could be eliminated; repairs upon equipment could be immensely reduced and haulage of empty cars could be largely overcome. It has been estimated that, with the service now being rendered, there could be a saving of from $300,000,000 to $500,000,000 annually, all of which could be utilized in a reduction of freight and passenger rates.

It is hoped that this showing, drawn from the evidence submitted to the committee, will leave no doubt in any mind respecting the desirability of pursuing the policy of reasonable unification under the supervision of the Interstate Commerce Commission and always with an eye single to the public interest. The committee has not had in mind increasing profits for the railway companies. Its attention has been directed solely to the highest efficiency in service and the lowest rates at which that service can be performed.

In order clearly to understand just what the present situation is, it is necessary to refer to the existing legislation upon this subject * * *.

The commission has been engaged in the effort to agree upon a plan. It has been unable to do so largely, if not wholly, because its interpretation of the present law requires a consolidation into a single ownership of the railways which are to constitute any given system. It must be conceded that this view of the existing statute presents an insuperable obstacle in the practical procedure of consolidation. It has been compelled to resort to paragraph 2 of section 5 as the authority for whatever unifications have taken place. It is this unfortunate situation that led to the introduction of the bill now being reported; and with these preliminary observations touching the existing statute, the committee turns to the analysis of the bill now under consideration.

The first section of the present bill is to relieve the Interstate Commerce Commission of the duty imposed upon it in the way of the preparation of the plan of consolidation or unification for a period of five years and to substitute for a plan during that time a procedure for voluntary applications, upon the part of railway companies for leave to consolidate, merge or unify, to become effective only upon the order of the commission which can only be entered when it is believed by the commission to be in the public interest.

It is hoped, and confidently believed, that within five years after the passage of the proposed act there will occur many consolidations or unifications, all of them as prescribed by the Interstate Commerce Commission and in harmony with and in furtherance of the policy declared in paragraph 1. But it may well be that at the end of this period the work will not be complete and so paragraph 19 provides that if, at the end of five years from the passage of this bill, the limited number of systems to be established in accordance with the policy set forth in paragraph 1 have not, in the opinion of the commission, been adequately provided for in its orders, the commission shall, as soon as practicable, prepare and by order, entered after notice and public hearing, adopt and publish a plan for the completion of such limited number of systems, either by the establishment of additional systems or by the allocation to any existing system of any carrier or properties not included in any such approved consolidation or unification.

Then followed a detailed explanation of the provisions of the bill.

In stating that the hearings on the bill were closed on February 25, after 318 pages of testimony had been taken, Senator Cummins ignored the statement made before the committee on March 13 by the then but not now de facto Senator, Smith W. Brookhart, which occupies pages 319 to 331 of the printed record of the hearings.

Representative Parker, chairman of the House committee on interstate and foreign commerce, has introduced in the House a railroad consolidation bill, H. R. 11,212, which is understood to differ in important respects from the Cummins bill. It was introduced on April 12 but was withdrawn for some changes and its printing has been delayed.

Railroad Employees' Pension Plans

Managements are facing some difficult problems under present system

By J. C. Clark

Industrial Relations Staff, Curtis, Fosdick & Belknap

A LARGE number of American railroads have adopted pension plans. At the time most of these systems were adopted there was very little experience to draw from in formulating the plans; in fact no railroad pension plan in the United States has yet been in effect for a long enough period to determine what the final outcome may be. There are so many complex questions involved that it seems desirable at this time to give some attention to the problem.

Most railroad officers recognize the necessity of some pension plan. They are constantly coming in contact with problems that involve retirement of old employees. From the standpoint of the supervising officer, safety and efficiency of operation are always the first considerations. When an employee with long years of service becomes physically disqualified, however, it is an extremely difficult matter for the responsible officers to retire these men unless a method has been provided to take care of them in their declining years. But even in the short period of time during which most pensions have been in effect, it has been found that the financial obligation involved is very serious and because of this it may be necessary to change the entire system.

Motives for Pension Plans

Before discussing the financial aspects of the problem, it is necessary to analyze the motives that stimulate railroad officers to establish pension plans. The first of these is usually stated to be a desire to provide a humane method of retirement. If this were the sole motive, however, it is doubtful if a pension plan could be justified as it would place the pension payment on a basis of benevolence and it is not likely that any railroad board of directors would sanction spending hundreds of thousands of dollars of the company's money for benevolent purposes, especially since railroad taxes are so high and these same taxes help to support public institutions that are designed to take care of those members of the community who are unable to care for themselves.

A number of pension plans state that the motive is to reward long and loyal service. It is true that during the last 25 years railroad salaries and wages have become, to a large extent, standardized. This is due partly to the activities of the national railroad labor unions and partly to federal government supervision. It is recognized that the older employees of long service act as balance wheels to the entire organization and are valuable assets to the company for which they work. Since the general practice is to pay the wage which has been fixed for a given job, rather than to fix the wage according to the abilities and value of the individual, it is not practical to reward the older employees except in some manner outside of regular wages. It seems, therefore, that pension payments to employees who have given their best years to the service of the railroad are justified, but it should be pointed out that under most pension plans the object is often defeated. This is because most plans require a minimum service—usually 20 to 30 years. Many employees fail to receive a pension because they reach the retirement age or are incapacitated for further service before they have completed the required period of service in the employ of the company.

Another very important motive is to increase safety and efficiency, especially in the train and engine service groups. When employees become physically incapacitated, due to advancing years, it is absolutely essential to retire them or provide other jobs in order to insure the safe movement of trains. The same argument applies to a less degree in the maintenance departments. It is also generally agreed that it pays to retire old employees in other branches of the service, because it enables work to be speeded up and provides promotion for the younger members of the force.

There are two other motives that should be mentioned and they are very closely related. The first is to improve morale, and the other to secure a better attitude on the part of the public toward the railroad industry. Even an unthinking employee is sensible to the injustice of retiring an old and faithful employee without any provision for pension payments, but when pension payments are provided, the retirement of one of the old-timers can be made the occasion for a get-together meeting that is of great value in building morale. It provides the opportunity for the higher officers of the company to express appreciation for good service and emphasize the necessity for co-operation between management and men. Such meetings are always reported to railroad publications and usually to local newspapers and in this way the general public is brought to a realization that the railroad really has consideration for its employees.

In any event, the benefits derived from a pension plan have a definite value to the company, and should not be considered as a deferred wage; neither should it be considered primarily as a benevolence or charity. It is, in fact, a good business policy if properly administered.

Definite Plan Advisable

The amount of a pension allowance depends somewhat on the point of view of the management and the object to be attained. If the object is simply to soften the blow of retirement, a lump sum payment would achieve this result at much lower cost than the present plans. If the object is to maintain a pensioner on a subsistence basis a definite payment should be established and all pensioners allowed the same amount with perhaps some variation to offset the difference in cost of living in different localities. If the object is to support the pensioner in relatively the same standard of living to which he has been accustomed, then the pension allowance should be based on salary earned during part or all of the service with the company. The latter of these three objects seems to have been predominant in formulating pension plans that are now in effect because, with one exception, railroad pension payments have all been based on a percentage of salary or wages earned.

Nearly all of the present pension plans provide automatic retirement upon reaching a certain age, with some variation in case of physical disabilities. They also pro-

vide a definite method of determining the amount of the allowance. There is no fault to be found with the idea of adopting definite pension rules because it is necessary to treat all alike in order to secure the best results. Under some informal plans the employing company is always open to the charge of discrimination, and because of this, loses a large part of the beneficial effect that would otherwise be felt. Furthermore, a definite plan is the only way to give the employee assurance that he will receive a pension when he becomes eligible, so that the argument all seems to be in favor of a formal plan. It should be remarked, however, that formal plans are always expensive and that in revising or starting a pension system, it might be wise policy to start with an informal plan and gradually work to a formal plan as accrued liabilities can be funded from the appropriations available.

Thrift

There is a definite relationship between pensions and thrift. It is evident that the individual employee who has practiced thrift throughout a long working life will not have the same need for a pension at the time of retirement as the employee who has been less thrifty. This is, of necessity, a general statement because thrift is an individual trait and even the most thrifty employees may come to the age of retirement with no funds for support in old age. There is no question, however, that the employer can materially aid in developing thrift among employees by offering opportunities for safe investment and by educating the employee in certain fundamental facts relating to economic and financial matters. The two subjects are so closely related that in formulating any pension plan a thrift plan can also be incorporated to good advantage, and for this reason it would seem to be good policy to combine the two.

Cost

Under the present pension plans the total cost to the company is determined by, first, the amount and duration of the allowance and, second, the number of pensioners. The amount of the allowance is determined in almost all cases by the wages earned during a period of years immediately prior to retirement and the number of years in the service. It is evident that the amount of the allowance cannot be accurately determined until the time of retirement. The duration of the allowance is usually for life, therefore, age at time of retirement and life expectancy are important elements.

When we attempt to estimate the other element in the total cost of pension plans, i.e., the number of pensioners, we find even greater difficulties. What proportion of the active working force at a given date will finally become eligible for pension? The first factor to be considered is life expectancy. American mortality tables throw some light on this, but they are constantly changing, and would not apply to any one industry. During the last 25 years medical science has accomplished wonderful results in disease control and we no longer have epidemics that were current even ten years ago. Better sanitation and health education are also constantly lengthening the period of human life. Safety appliances and various safety activities on the railroads have cut down accidents to a remarkable degree and this also is a factor to be considered. In fact it appears that every factor is working to prolong life and consequently bring a larger number of employees to the retirement age.

Another important factor is the fluctuation in the size of the active working force. Some individual railroads more than doubled their total number of employees between 1910 and 1920, and even though the forces were reduced subsequent to 1920, the effect of the peak of employment at that time will not be felt on pension costs until 1940 or 1950, due to the service requirements which vary from 20 to 30 years.

Still another important factor is labor stability. Great effort is being made at the present time to cut down labor turnover and provide all the year round employment for railroad workers. It is quite evident that to the extent that these efforts are successful final pension costs will be increased. From the foregoing it seems clear that all factors entering into the problem at the present time have a tendency to increase pension costs. It is also clear that these factors are all variable and cannot be calculated accurately more than a year or two in advance.

Accrued Liabilities

It is necessary to discuss briefly the problem of accrued liabilities, and this can best be done by an example. A certain railroad adopted a pension plan which required 30 years of service with the company, and provided for automatic retirement at the age of 70. At the time this plan was adopted John Brown, an employee, was 60 years old and had been in the service of the company 30 years. In other words, John Brown had already fulfilled the requirements with respect to length of service and only needed to live ten years in order to fulfill the age requirements. It is evident that the moment the railroad put this pension plan into effect, it assumed the liability of the 30 years of service that John Brown had with the company and it became its duty to make provision in a financial way to pay a pension to John Brown ten years later for service that already extended 30 years into the past. It is a very complicated procedure to determine the liability when all employees are considered. It involves such changing factors as labor turnover and life expectancy in all the different groups composing a railroad personnel. For this reason accrued liability changes from year to year and it is only possible to make an estimate for a few years in advance.

At the present time railroad pension plans are not funded. Pensions are paid from current operating revenue and charged to operating expense. This is certainly a very loose method of handling such an important question as it makes no provision whatever for the future and who can say that any railroad will be financially able to meet pension payments 30 years in the future from operating revenue? In addition to being an unbusinesslike method it is a very expensive method. By taking advantage of interest accumulations at 4 per cent compounded annually, the railroads could save approximately two-thirds of their pension costs. Partial funding could be accomplished even under present plans by purchasing a one premium annuity for each employee at the time of retirement. Table No. 1, which is based on American mortality tables, shows life expectancy and cost of annuities at various ages for men.

TABLE I

Age	Life Expectancy Approximate Years	Cost of Life Annuity of $1.00 for Men
65	11.10	*9.0986
66	10.54	8.7617
67	10.00	8.4269
68	9.47	8.0946
69	8.97	7.7654
70	8.48	7.4400

* 3½ per cent interest compounded annually.

Suppose that an employee's allowance at time of retirement at age of 70 is $200 per year. If this amount is paid currently from revenues, the total cost based on life expectancy of 8.48 years, would be $1,696, but an annuity of $200 per year could be purchased for a lump sum of $1,488, a saving of $208 to operating expense.

The Economy of Early Funding

In order to accomplish complete funding it would be advisable to make some change in the present plans. Under present plans allowances are, with one or two exceptions, determined by multiplying 1 per cent of the average yearly salary during the last ten years of service by the number of years in service. By changing this provision so that the amount would be determined by adding 1 per cent of the salary earned during each year of service, approximately the same result will be obtained, but it will then be possible to fund a part of each employee's prospective pension at the completion of each year of service. Let us assume the case of an employee who enters the service at 20 years of age, receives a salary of $1,500 per year throughout his entire service, and is retired at age 70. Table No. II shows the amounts necessary to fund an annuity of $15 per year or 1 per cent of the yearly salary, at the ages shown. Annuity to begin at age 70 and stop at death.

TABLE II

Age	Cost	% of Yearly Salary
20	$15.70	1.04
30	23.25	1.55
40	34.44	2.30
50	50.95	3.40
60	75.40	5.03
70	111.60	7.44

This table is based on 4 per cent interest compounded annually. This contrasts very strikingly the effect of funding pension payments. At the age of 20 the cost of the $15 annuity to begin at age 70 is only $15.70, while at the age of 60, it is $75.40. No further argument is needed to show that a large reduction of operating expense could be secured by early funding.

The last column of Table II shows the per cent of salary necessary to fund one per cent of the same salary at the ages shown. These percentages vary from 1.04 per cent at age 20, to 7.44 per cent at age 70, and, of course, would hold good regardless of the amount of the salary. Assuming a fixed salary from beginning to end of service and retirement at age 70, with a yearly pension payment equal to the sum of one per cent of each year's salary, beginning at age 20, it would require 2.34 per cent of each year's salary with accumulations of interest at 4 per cent compounded annually to produce the required amount. Beginning at age 30, it would require 3.01 per cent and at age 40, 3.82 per cent. In actual service these percentages would be higher because the employee always enters the service at a comparatively low wage or salary, and does not reach his peak earnings for a number of years. Consequently the accumulation in his pension fund during his early years of service when the rate is low will not offset his higher earnings in later years when the rate is high. This condition can be adjusted to a certain extent by fixing a fairly low maximum pension allowance, say $60 per month, or $720 per year.

If this is done the higher paid employees would accumulate a sufficient amount to provide the maximum allowance a varying number of years before the retirement age, and payments to that individual pension fund would stop.

Total Cost to the Company

The foregoing gives a fair idea of the cost of the individual pension and how the cost of funding increases with the age of the employee. It is also clear that funding is desirable, and in fact necessary, if costs are to be held within reasonable limits and the employees assured of a pension when they become eligible, but apparently we are as far as ever from the total cost to the company. In order to analyze this problem, we will take the case of a certain railroad that has had a typical pension plan in operation for a number of years. During 1924 this road pensioned 95 employees and 57 pensioners died, leaving 641 on the pension rolls at the close of the year. The average monthly pension allowance was $42 and total pension payments $310,000 which was .67 of one per cent of the active pay roll. The average age of pensioners at date of retirement is not known, but it can safely be assumed that it was 67 as this is about the average of railroads with similar plans.

We will assume that it had been decided to fund this plan beginning January 1, 1925, and the cost had to be estimated. It could be determined from the company's records fairly accurately how many employees would become eligible for a pension during the year 1925, but we will have to assume that it would be 100, which is about the normal increase with this company. An annuity of $504.00 ($42 x 12 mo.) beginning at age 67, would cost about $4,080. One hundred such annuities would cost $408,000 which would be .855 of one per cent of the active payroll for 1924. Add to this .67 of one per cent to take care of the old pension roll, and the total is 1.525 per cent of the active payroll. It is evident that deaths among the old group of pensioners will gradually decrease the old pension roll since there will be very few, if any, additions to it, but any surplus thus created should be used to buy annuities for the old group of pensioners so as to eliminate the old pension roll as quickly as possible. We have assumed that annuities would be purchased from an insurance company, but this is a matter of choice. If the group of pensioners is large enough, the individual road may be able to administer the annuity fund to good advantage.

The Pension Fund

The fund created by the 1.525 per cent of the active payroll estimated above, and which for convenience we will call the annuity fund, is only part of the funding operation. In order to give adequate assurance to active employees that they will receive a pension allowance when they become eligible, and also to secure the benefits of interest accumulations over a long period of time, it is necessary to create a fund during the active service of each employee that will be sufficient, with interest accumulations, to purchase the required annuity at time of retirement. For convenience, we will call this the pension fund. In order to illustrate, let us suppose that this railroad opened a separate account for each employee in active service. As shown earlier in this article, it would require *more* than 2.34 per cent of each year's salary beginning at age 20, with interest at 4 per cent compounded annually, to provide an annuity beginning at age 70 equal to the sum of one per cent of each year's salary. At age 30 it would require *more* than 3.01 per cent. At age 40, *more* than 3.82 per cent. The percentages are based on the assumption that the employee is *entering the service* at the ages given. But we are supposing that the road we are talking about is starting the funding plan on January 1, 1925, and at that date it has employees of all ages, with years of previous service to their credit.

Suppose it were decided to credit the pension fund of each employee that was in his fortieth year on January 1, 1925, with 3.82 per cent of each year's salary beginning with 1925—what happens? Each employee in this group who fulfills the requirements of eligibility at age 70 would have a pension fund sufficient to purchase an annuity equal approximately to the sum of 1 per cent of each year's salary beginning with 1925, but that part of the pension allowance due on account of services performed prior to 1925, would have to be provided from some other source. It is quite apparent that the higher the age on January 1, 1925, the higher the percentage of

salary that would have to go into the pension fund, and the higher the ratio of the total pension allowance that would have to be met from the annuity fund.

But of all employees in the service on January 1, 1925, only a small part will ever become eligible for pension. What becomes of the pension fund built up for the protection of those employees who leave the service? Naturally it would go into the annuity fund to take care of all those employees who become eligible for pension, with the pension fund insufficient to purchase the promised annuity. The amount that would become available for transfer from the pension fund to the annuity fund from year to year, can only be determined by an actuarial study. It would be small for several years, because the amounts in the individual employee's accounts would be small, but as the years rolled around, the accounts would grow and the amount available for transfer would reach large proportions. For the same reason, demands on the annuity fund would grow less and less, so that appropriations to both the annuity fund and the pension fund could be gradually decreased until after about 50 years, the minimum would be reached.

Now let us get back to our specific case again. It is plain that the exact percentage of salary necessary to yield the promised annuity at retirement cannot be determined except by expert actuaries, but in view of the annuity fund supported by 1.5 per cent of the payroll already set up, it will be safe to set up a pension fund somewhat less than the total requirements, but large enough to insure complete funding eventually. We have already determined that 3 per cent of each year's salary or wages, beginning at age 30 will produce an annuity at age 70 approximately equal to the sum of 1 per cent of each year's salary. All things considered, it would seem that 3 per cent of the total active payroll would be adequate to start the accumulation of a pension fund for the present active force. Now we will draw a dividing line at age 30. Three per cent of the salary of each employee who is 30 years of age or over, would be credited to his individual pension account, and the same procedure followed for all employees as they reach age 30 after January 1, 1925. This would leave a surplus equal to 3 per cent of that portion of the payroll that is paid to employees under age 30. This surplus would be applied to the pension fund of those employees who will become eligible for pension in 1926 first, then 1927, etc., until all employees would finally be fully funded. In addition to this, other funds would become available for this purpose, as those employees over 30, who have accumulated a pension fund, leave the service.

Now our proposed funding plan for this road calls for 4½ per cent of payroll for 1925—1½ per cent for the annuity fund, and 3 per cent for the pension fund. It is reasonably certain that it would never have to be more than this, but it would have to be maintained at this point until annuities have been purchased for all of the old pensioner group and a sufficient surplus accumulated in the annuity fund to take care, for at least a year, of all employees becoming eligible for pension with pensions funds inadequate to purchase the promised annuity. In this case, it would probably be three to five years. After that, appropriations could be gradually reduced until the minimum would be reached in about 40 years when the plan would be fully funded.

In the case of the railroad we have been using as an example, it is probable that an appropriation less than 4½ per cent of the total active payroll might eventually result in complete funding of the plan without having to increase appropriations at some time in the future. This could only be determined by an actuarial evaluation. The estimate of 3 per cent of active payroll to be used for the accumulation of a pension fund for active employees was chosen because that is the percentage, approximately, of the salary of each individual, beginning at age 30, required to produce the promised annuity at age 70. Age 30 was chosen because the information available indicates that the average length of service of pensioners at time of retirement is slightly less than 40 years. It is obvious that the larger the initial payments into the pension fund the sooner these payments can be reduced and the sooner the final minimum will be reached.

The sum represented by 4½ per cent of the payroll on any railroad is a lot of money, and it does not seem likely many roads could stand such an expense. But if they continue their present plans without funding, the total expense is certain to be far more eventually. Four per cent compound interest tables prove that the total cost of a funded plan compared to an unfunded plan, is in the ratio of about one to three. The longer present plans run without funding, the higher the initial cost of funding will be. This fact makes it imperative that early action be taken.

Contributory Plan Advisable

The foregoing is intended to give an idea of the financial problem involved and a rough approximation of the total cost, but is not intended as a suggestion as to how to proceed. As a matter of fact, if the present plans are to be continued, actuarial advice is essential before any attempt is made to fund the various plans. But it is quite clear that the expense of continuing present plans, either funded or unfunded, will be so great as to suggest the advisability or necessity of finding some method of reducing the financial obligation.

This can be accomplished by a contributary plan under which employees would share the expense. Such a plan should provide a fixed percentage of each employee's earnings to be contributed by the company to each employee's pension fund. The employee's minimum contribution should be the same as the company's contribution, but the employee should be encouraged to deposit additional amounts to his pension fund and so increase the amount of his pension when retired. Provision would have to be made for the employee to withdraw his deposits with interest in case he left the service before he becomes eligible for pension, and it might be advisable to permit withdrawal of amounts in excess of the required minimum at any time on short notice. In case of death, the employee's contribution should go to his estate. It is evident that this plan would require an individual account for each employee which would increase somewhat the cost of administration. The plan should be administered jointly by the company and the employees.

Making Financial Provision

Space does not permit a detailed discussion, but one point should be made plain. The suggested plan contemplates that the management will determine what percentage of the payroll it can permanently afford to appropriate for pension purpose and provides the means by which the employee, by practice of thrift, can increase his final pension by his own contributions. This is the direct opposite of most of the present plans which lay down the rules for determining the pension allowance, but make no adequate financial provision for payment and make no provision for employees to increase their own pensions. In neither case would the amount of the pension allowance be known until the time of retirement, but under the suggested plan, the cost would be a fixed percentage of the payroll, while under present plans, the costs can be estimated for only a few years in advance by a complicated and costly study.

Damage to Rails by Car Wheels

Are transverse fissures and rail fractures started and developed by uncushioned shocks between car wheels and rails?

By T. H. Symington
Baltimore, Md.

IN the *Railway Age* of December 5 and December 26, 1925, and January 23 and February 20, 1926, transverse fissures in rails were discussed from many angles. There is, apparently, no general agreement as to why these failures develop. It was stated that repetitions of the disastrous wrecks at Manchester and Victoria could be expected at any time. Many railroad executives believe that other types of rail fractures are more of a menace than transverse fissures.

Every one agrees that heavy wheel loads are responsible for all rail breakages, regardless of the physical and chemical characteristics of the rail, and that these wheel loads should be reduced to the minimum that is possible with existing car equipment. It is generally believed that unbalanced locomotive driving wheels give the maximum impinging pressures between wheels and rails. The purpose of this article is to show that freight car wheels are far more damaging to rails than locomotive driving wheels.

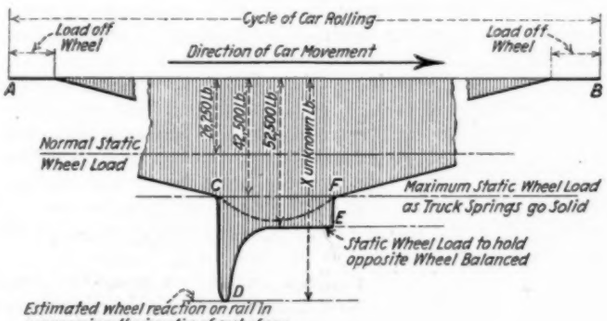

Cycle of Car Rolling
Load off Wheel
Direction of Car Movement
Load off Wheel
A
B
26,250 Lb.
42,500 Lb.
52,500 Lb.
X Unknown Lb.
Normal Static Wheel Load
C
F
Maximum Static Wheel Load as Truck Springs go Solid
E
Static Wheel Load to hold opposite Wheel Balanced
D
Estimated wheel reaction on rail in overcoming the inertia of rest of one half the truck and to lift the opposite wheel against its spring reaction

Fig. 1

It is impossible to maintain track in perfect line and surface. When considering the reaction between wheels and rails, therefore, we must realize that it is not unusual to find soft spots, known as pumping joints, in many main line tracks which will let the rail joint depress as much as one inch. On side tracks and in yards, these depressions are often as much as two inches. Inequalities in track initiate car roll, either by gravity, operating on account of a soft spot in the track, or by truck surge, resulting from track out of alignment.

Service experience seems to indicate that many rails as light as 56 lb. do not develop transverse fissures as readily as some of the heavier, modern rails, although subject to the same character of service. It may be noted that the commencement of trouble with transverse fissures in rails was coincident with the introduction into general use of the stiff cast steel truck side frame. All destructive pressures going into the rail must pass through the truck side frame. The best 55-ton archbar side frames have, under static load, an elastic limit of 75,000 lb., and are still giving satisfactory service. When the cast steel side frame was introduced, an elastic limit, under static load, of 150,000 lb. was found necessary for the 55-ton frame, in order to enable it to stand up under the shocks of service. In my opinion, it is because of the lack of elasticity in this frame that such greatly increased strength is necessary. I believe, therefore, that the greater flexibility of the lighter rail and the old archbar truck provided a sufficient cushion to prevent momentary destructive pressures through the truck frame to the impinging contact between the car wheel and rail.

For supporting a load, the wheel is the equivalent of a roller; and all investigations have shown that the carrying capacity of a roller and its support is proportional to the product of the length of the roller multiplied by its diameter. The area of contact between the wheel tread and the rail is directly proportional to the pressure that can be exerted without causing destructive stresses on or below the rail surface. This area of contact is proportional to the product of the effective width of the contact across the rail and the diameter of the wheel.

Theoretically, the contact between the rail and a new car wheel, or locomotive driving wheel, is a point. This point of contact only becomes an area of contact as a result of the elasticity of the surface of the wheel and the surface of the rail. In any wheel contact with the rail there is a small area of maximum stress and deformation in the rail at the center of the contact. It is obvious that, because the manganese steel tread of a car wheel is harder than any rolled steel wheel tread, the contact area, under equal load, will be greater for the rolled steel tread than for the manganese cast steel tread, when the wheels are of the same diameter. It should be realized that the harder the wheel the greater is the stress and deformation in the rail. Chilled cast iron wheels have harder treads than manganese tread cast steel wheels; with equal loading, therefore, the chilled cast iron wheel is even more destructive to rails than the manganese tread cast steel wheels.

The effective width of contact across the rail of a 66-in. locomotive driving wheel is the same as that of a 33-in. car wheel of equal hardness, when both are unworn and have no load; the effective length of contact along the rail is doubled for the driving wheel, however, because of the difference in the diameter of the wheels. A 66-in. locomotive driving wheel can apply, therefore, twice the load on the rail that can be applied by a 33-in. car wheel of equal hardness with no greater destructive stresses in the rail on or below its running surface. The strength of the rail as a beam is not under consideration in this connection.

No theory can be finally accepted until it is scientifically proved. It is a simple matter to demonstrate the relative effect on the rail of the 33-in. manganese steel tread car wheel and any diameter of locomotive driving wheel. One method would be to subject a segment of maximum

hard 33-in. tread and a section of rail to some pressure in a standard testing machine that will make a measurable depression in the rail. Then duplicate the test with a segment of equally hard 66-in. tread in order to find the pressure that will also make a depression in the rail. To get an exact measure of the comparative effect on the rail of chilled cast iron and the two grades of steel in the wheel treads it would be well to test sections of a 33-in. manganese steel tread wheel, a 33-in. chilled iron wheel and a 33-in. rolled steel tire.

It must be assumed that everything possible is being done to perfect the chemistry, metallurgy and mill practice in the production of rail. This is essentially the problem of the steel mills. Our problem is to minimize wheel pressures.

It is possible to demonstrate positively whether existing freight car trucks need modification in order to prevent the excessive high stresses that initiate and develop transverse fissures and other fractures in rail *as now made*. All freight cars roll. Before recent investigations were made, few railroad men realized how frequently the truck springs on freight cars go solid, resulting in the lifting of the opposite wheels off the rail. This result of car roll has recently been scientifically established. It is safe to assume that heavy uncushioned shocks going into the rails from car wheels, or from unbalanced locomotive driving wheels, are more apt to result in the initiation and development of transverse fissures and other fractures than are the lesser impinging pressures incident to normal operating conditions. It is possible to demonstrate the character and intensity of all such uncushioned shocks.

The diagram shows graphically the known and unknown pressures between the rail and one wheel of a 70-ton hopper car equipped with A.R.A. standard truck springs, that has rolled sufficiently to lift the wheels on the opposite side of the truck. In this diagram it is assumed that there is no side bearing clearance and therefore the truck bolster can be considered as part of the car body structure. Line *AB* represents a length of track within which the car has rolled from one side to the other and back, the roll being sufficient to cause the truck wheels to lift from the rail. In this diagram the car is considered as moving from left to right. Line *AC* gives the pressure curve between one wheel and the rail, up to the time the truck spring goes solid. Line *CD* gives the estimated pressure curve necessary to overcome almost instantly the inertia and lift one-half of the opposite side of the truck. Point *E* indicates the pressure of one wheel on the rail necessary to balance one-half of the opposite side of the truck, after dissipation of the excessive pressure *X* needed to overcome suddenly the inertia of the truck. Line *DE* gives an assumed yield curve. Point *F* corresponds with point *C* and line *FB* corresponds with the line *AC*.

It will be noted that, when the car rolls excessively, a known pressure of 52,500 lb. can occur between one car wheel and the rail.

In this stress diagram the only unknown pressure is *X*. This pressure can be established empirically and in my opinion it may be 85,000 lb., which is twice the maximum spring load. Such a pressure is twice as destructive to the rail as the same load on a 66-in. locomotive driving wheel of the same tread hardness.

It is quite possible that, with the flexible archbar truck and the lighter, more flexible rail, points *C* and *F* may be connected directly, as shown by a dotted curved line. This avoids the high impinging pressure at *D*.

The moment the truck spring on one side goes solid there is a vertical pressure on the rail from each wheel of 42,500 lb., which is one-half the spring capacity plus one-quarter of the dead weight of the truck. Simultaneously, the spring on the opposite side of the car exerts a pressure of 15,000 lb. At this instant all of the momentum of the rolling car body has not been absorbed. To oppose the lifting of the wheels there are moments of resistance, consisting of the spring pressure of 15,000 lb. multiplied by its arm plus the dead weight of the truck parts multiplied by their arms. These combined equal 1,292,580 in.-lb.

The maximum load on the two journals that will balance the opposite wheels is 95,000 lb. This load multiplied by its horizontal lever arm gives us a moment around the fulcrum rail of 896,800 in.-lb. Subtracting this moment from the moments of resistance we find remaining a moment of 395,780 in.-lb. Dividing this moment by the vertical arm from the rail to the top of the journal we find a transverse force at the top of the journal of 20,296 lb. As soon as the opposite wheels lift from the rail, the entire dead weight of the truck is transferred to the fulcruming rail, thereby adding 2,500 lb. per wheel.

It is evident then, that before the wheels will lift from the rail there is a vertical force from each wheel on the fulcruming rail of 52,500 lb. and at the same time a horizontal force on this wheel of 10,148 lb. These forces do not include the added vertical and horizontal forces necessary to overcome suddenly the inertia of the rest of the truck.

When there is side bearing clearance the calculations for moments are more complex, but the static results are approximately the same as when there is no side bearing clearance. The dynamic blow which damages the rail, however, is greater with side bearing clearance than without.

As the transverse force of 10,148 lb. per wheel is coincident with the vertical force of 52,500 lb. per wheel, the contact area for transverse resistance between the wheel and rail must merge into the contact area for vertical resistance. For this reason there must be in this merged contact area a resultant combined skin stress in the rail greater than the stress due to the vertical load of 52,500 lb.

Because of the inequalities in the shape of all steel castings, it is certain that the spring seat in many cast steel side frames is out of parallel with the spring seat of the truck bolster. This lack of parallelism is increased when one wheel is down in a soft spot in the track. Under this condition a perfect truck spring will go solid in a coil adjacent to one wheel and any added load on this wheel is then momentarily increased from 50 per cent to 60 per cent of the total added load, because of the shift in leverage. This unknown pressure *X*, therefore, may be momentarily largely increased on one wheel, up to the point of equalization. Flexibility of the truck parts provides this equalization.

It is not known what the contact areas are between the wheels and the rails which resist the transverse force when the car rolls towards the inside rail on a curve, at which time the outside front flange of the truck is crowded against the outside rail. It may often happen, particularly on a curve, that the contact area for supporting the vertical load coincides exactly with the contact area for resisting the transverse pressure. This means that the same fibres in the rail are resisting vertical load and transverse pressure. The combined stress in the rail is thereby increased. It may happen that one wheel will deliver to the rail the larger part of the entire transverse load, when the flange on the other wheel, on the same side of the truck, is kept away from the rail by other forces.

The approximate nature of the curve of impinging pressure between the unbalanced driving wheel of a locomotive and the rail is well known. There is no sudden change of direction in this curve. We shall assume

that if, with a normal weight on the rail of 30,000 lb., a 66-in. driving wheel is sufficiently out of balance to cause centrifugal force to take all weight off the wheel, but not to lift the wheel, then the maximum impinging pressure will be double the normal, or 60,000 lb. Locomotive driving wheels are rarely this much out of balance. It is obvious that the excess pressure from the unbalanced locomotive driving wheel is eased into the rail, whereas, referring to the diagram, the maximum pressure *X* from the car wheel is not. Locomotives do not roll like freight cars, because their spring action is dampened and therefore no other added load on the rail will be considered for the driving wheel.

As already stated, with identical loads a 66-in. driver exerts less than one-half of the destructive pressure on the rail that is exerted by the 33-in. manganese steel tread or chilled iron car wheel.

Without taking into account either *T*, the increased vertical pressure on one truck wheel because of the truck spring going solid adjacent to this wheel; or *U*, the increased transverse pressure that may come on one truck wheel because the other wheel flange on the same side of the truck is held away from the rail by other forces; or *V*, the increased combined stress in the rail when the areas of contact for both vertical and transverse pressure coincide; or *W*, the nearly instantaneous application of the car wheel maximum pressure; or *X*, the high unknown pressure indicated in the diagram; or *Y*, the increased damage to rail incident to the harder manganese steel tread or chilled iron car wheel; or *Z*, the unknown vertical component of the transverse pressure caused by the car roll—without taking into account any of these factors it would seem that under a 70-ton car, the wheel can do 75 per cent more damage to the rail than can be done by the 66-in. locomotive driver being out of balance as indicated. This percentage is obtained by doubling the known pressure of 52,500 lb. for the car wheel, because of its being one-half the diameter of the driving wheel.

Without taking into account any of these unknown factors, and simply because of the difference in the diameter of the wheels, the 70-ton car wheel, when rolling within the travel of the truck springs, is nearly three times as damaging to rails as the 66-in. locomotive driving wheel, when the latter is perfectly balanced. Without taking into account any of these unknown factors, when the cars are rolling within the travel of their truck springs, and only because of the difference in diameter of the wheels, the 55-ton car wheel is more than twice, and the 40-ton car wheel twice as damaging to rails as the 66-in. locomotive driving wheel when perfectly balanced. If we take into account the unknown factors *T*, *U*, *V*, *W*, *X*, *Y* and *Z*, it is quite possible that the car wheel, under the above conditions, is more than three times as damaging to the rail as the 66-in. locomotive driving wheel, unbalanced as indicated.

An analysis of the possible maximum impinging pressure on the rail from the 55-ton car wheel indicates that it may be more than two and one-half times as damaging to rails as the 66-in. locomotive driving wheel, unbalanced as indicated, and that the 40-ton car wheel may be more than twice as damaging as the same unbalanced locomotive driving wheel. When the 66-in. locomotive driving wheel is perfectly balanced and the car is rolling within the travel of the truck springs, the 70-ton car wheel is three times as destructive to the rail as the driving wheel. This is because the car wheel has a 50 per cent smaller diameter, and is harder. Under these conditions, the 55-ton car wheel is *two and one-half times* as damaging to the rail as the perfectly balanced driving wheel and the 40-ton car wheel is more than twice as damaging to the rail as is the said driving wheel. If the locomotive driving wheel is perfectly balanced, and the car rolls sufficiently to lift its wheels from the rail, the 70-ton car wheel may be six times as damaging as the driving wheel, the 55-ton car wheel may be five times as damaging as the driving wheel, and the 40-ton car wheel may be four times as damaging as the driving wheel.

In order to establish the unknown impinging pressure *X*, a test plant of the following character would be needed. A high gravity 70-ton loaded car will be placed over a pit so constructed that, by cam action, the rail under each truck on one side will be dropped about ½ in. and then gradually lifted. The other rail will then be dropped ½ in., and gradually returned to normal. This mechanism will be controlled by a variable speed motor, in order that the car roll can be timed to the exact speed which will coincide with the regular timing of the pendulum roll of the car body. Between one wheel and its support a mechanism will be arranged to take this entire wheel load on a suitable steel ball. Such an arrangment will provide for taking Brinell readings and will keep the wheel tread at the elevation of the rail. The rail supports should be the same as those on a standard road bed. The static weight of the car will produce a depression of a certain measurable diameter on a steel plate. When the car is rolled sufficiently to lift the wheels on the opposite side, the depression caused by the steel ball on the steel plate will be larger.

This latter depression then will be reproduced in a standard test machine, and finally, we will have the following comparative information:

A—The static weight of 47,500 lb. on one nest of truck springs, distributed on two wheels, will give a definite Brinell reading under one wheel.

B—A second reading will then be taken to indicate the pressure between the wheel and rail when the car is rolling within the travel of the truck springs.

C—The Brinell reading obtained with the uncushioned shocks, when the truck springs go solid and the opposite wheels are lifted, will correspond with the Brinell reading of a static load to be determined.

It would be instructive to establish an actual comparison of the dynamic effect of uncushioned shocks between the wheel and rail of the high capacity car and the locomotive. The damaging effect of unbalanced locomotive driving wheels could be determined in any locomotive test plant. By supporting the bearing of the idle wheel under the main driver on three suitable steel balls, Brinell readings could be taken. These readings, by comparison with similar readings produced in a standard test machine, would determine the maximum pressure resulting from uncushioned shocks on the rail caused by the dynamic augment resulting from the unbalanced driving wheel and main rod pressure.

The desirability of measuring the impinging shocks from both high capacity cars and locomotives is apparent. If it is found that the impinging pressure of the freight car wheel is responsible for the initiation and development of transverse fissures and other fractures in rails, every effort must be made to minimize this car wheel pressure, which, on level track, under the static 70-ton loaded car, amounts to 26,250 lb. per wheel. This load cannot be excessively increased except by excessive car rolling. If car rolling is minimized, the normal operating wheel pressure on the rail will not exceed 30,000 lb. to 35,000 lb., whereas with excessive roll it may reach 85,000 lb.

To withstand high impinging wheel loads, to resist deformation and to resist too rapid wear, particularly on curves, rails must be hard. It is well known, therefore, that the specifications for modern rails are a compromise between hardness and the necessary ductility. There are a number of metallurgical theories as to the cause for the unsound conditions that exist in many rails which, in service, result in the development of transverse fissures and

other fractures. Regardless of whether one or all of these metallurgical theories are correct, it is obvious that all rails containing any imperfections are susceptible to failure under dynamic shocks such as those delivered by modern freight car wheels. Adequate absorption of work, in connection with the truck springs, will prevent the excessive roll of the car body which results in truck springs going solid. As dynamic shocks between the car wheel and rail occur only when the truck springs go solid, adequate absorption will prevent all such dynamic shocks.

The results obtained from the tests described above will, in my opinion, prove conclusively that the excessive roll of modern freight cars is one of the chief causes, if not the chief cause, for initiating and developing transverse fissures and other rail fractures. Such tests should prove beyond doubt that the impinging pressures on the rails resulting from improperly balanced locomotive driving wheels are secondary to the destructive action of rolling freight cars, particularly when the truck springs of the latter go solid.

The problem would seem to lie, therefore, in the design of freight car suspension. This suspension should provide for all cars, and particularly for stiff body cars, as uniform spring reaction as possible at the four corners of the car under all operating conditions. This suspension not only should minimize rail breakage but also should minimize freight car derailments, spring failures and pressure between the wheel flange and the rail.

Oppose Store-Door Delivery

STORE-DOOR delivery in Chicago is inadvisable because of the efficiency of the existing methods, in the opinion of shippers who attended the regular monthly meeting of the Chicago Shippers' Conference Association at the Hotel LaSalle, Chicago, on April 7. The Service, Merchandise Schedule and Trap-Cars committee, after making a study of the subject of store-door delivery within the Chicago terminal, reported that the various methods for the delivery of l.c.l. freight in effect are to all intents and purposes producing the results contemplated for an optional store-door delivery plan without the railroads engaging in the trucking business.

Two types of delivery were found to prevail. Under one, consignees who regularly receive shipments of l.c.l. freight file with the railroads standing orders that their freight be delivered immediately upon arrival to one of the privately owned transfer companies operating in the city. Under the other, firms that receive many consignments of inbound l.c.l. freight and that own wagons or trucks, or engage such vehicles exclusively for their service, have their vehicles called at each inbound freighthouse daily to pick up freight that has arrived for them. In addition to these cartage arrangements, Chicago consignees have l.c.l. freight delivered at their doors through the Chicago Warehouse & Terminal Company, the Merchants Lighterage Company, or by trap-cars, Further, inbound l.c.l. freight is moved from the downtown inbound freighthouses to various universal freight stations for delivery, either to vehicles at the universal freight station door, or to the doors of the consignees by trap-car.

An investigation was conducted for the purpose of determining whether the advantages suggested for store-door delivery might be obtained by improving the present trucking arrangements without the establishment of store-door delivery as a railroad service. A thorough canvass of all the railroads in the city covering their traffic for one week showed that 40 per cent of the inbound schipments are removed from the freighthouse on the day of receipt without giving notice of arrival to the consignee.

The report of an independent investigation made by the railroads in Chicago which was submitted to the committee, supported the committee's position. The railroads found that a plan, embracing all of the benefits of the proposed optional store-door delivery plan, is now in effect in Chicago; there is no indication that the plan proposed by the U. S. Chamber of Commerce would afford substantial relief to railroad freighthouses. Its principal effect would be to divide the tonnage that is now handled satisfactorily between the vehicles that would be provided by the railroads and the vehicles of private trucking companies. No indication was found that the railroads would be able to perform trucking service more efficiently or more economically than the private trucking companies. As the present plan offers opportunity for much expansion, receivers of freight, if so inclined, may avail themselves of the service to a greater extent than they are now doing. The Chicago Conference committee believes that the plan, if adopted as a means of relieving congestion at railway terminals, might create the situation of transferring this congestion from the railway terminal to the place of business of the consignee. In many instances receivers of freight arrange schedules for receiving their shipments from freight stations to fit the conditions within their plants, and such freight, if tendered to them at the convenience of the trucking company, would congest and disrupt their own operations. It was also found that conditions at the railroad freighthouses at the time of the investigation were generally satisfactory with a record volume of freight being handled. This indicated no necessity for such a change and that in the event such necessity did ever arise the Chicago shippers could be depended upon to furnish relief through a greater use of the present arrangements which enable the railroads to deliver more than 40 per cent of their daily receipts without giving consignee notice of arrival.

In summarizing the report, the committee stated that the plan of store-door delivery proposed by the U. S. Chamber of Commerce would not result in substantial relief to railroad freighthouses or provide a more economical handling. The methods now employed at downtown freight terminals for the delivery of inbound freight, which are the result of many years of study and practical experience, are susceptible to expansion when necessary, and are better adapted to the requirements of this terminal than the plan under consideration.

Opposition to regional appointments to the Interstate Commerce Commission as proposed in bill S—2808 now before the Senate, was expressed in a resolution passed by the conference. It is the view of the Chicago Shippers' Conference that any bill having for its purpose the appointment of members of the Interstate Commerce Commission from 30 designated sections of the United States is wrong in principle and will tend to weaken rather than strengthen the commission. The regulation of commerce among the states including transportation by railroads is a national and not a sectional question. The appointment of commissioners from such geographical divisions will inevitably create sectionalism with attendant rivalries and friction. The commission is a non-partisan body which is clothed with administrative, quasi-legislative and quasi-judicial powers. The law creating the commission and conferring these powers recognizes no division or section of the country. It assumes regulation by a body selected from the whole people to exercise its powers in the interests of the whole people. No commissioner can properly perform the duties of his office if he permits himself to be influenced in the slightest degree by questions of locality or section.

C. N. Whitehead Elected President of M.-K.-T.

Executive vice-president succeeds C. E. Schaff, who retires on May 1

CHARLES N. WHITEHEAD, executive vice-president of the Missouri-Kansas-Texas lines, has been elected president ot the Missouri-Kansas-Texas of Texas and will next week be elected president of the Missouri-Kansas-Texas Railroad Company, thus being made the chief executive of the system. He succeeds C. E. Schaff, who, as recently announced, has decided to retire from active service.

It has long been well understood that Mr. Whitehead would succeed Mr. Schaff whenever the latter decided to retire. He was a boy only fourteen years old when in 1892 he entered the service of the Missouri-Kansas-Texas as a messenger in a local freight office. He had risen to the office of secretary and treasurer when Mr. Schaff became president of the road in 1912. The next year he was made assistant to president, and ever since then has been very closely associated with Mr. Schaff in the development and operation of the property. Since the railroad came out of receivership he has been executive vice-president.

C. N. Whitehead

Among the officers and employees of the M.-K.-T. and the people throughout the territory it serves there will be general and genuine satisfaction and pleasure because of Mr. Whitehead's election. He has been connected with the railway for 34 years. He is probably known personally to more of the employees than any other man on the road and is very popular with them and his fellow officers. Likewise his personal acquaintanceship and popularity among all classes of people is extensive throughout the southwest.

Although practically his entire railroad career has been on the M.-K.-T., he has had a varied railroad experience. He has served in various capacities in the traffic, operating, financial and legal departments. He has been the head of the financial department as secretary and treasurer, the head of the operating department as general manager and was chief executive as federal manager.

Mr. Whitehead would be the first to acknowledge his indebtedness to the man he is now succeeding as president. Mr. Schaff went from the New York Central, on which he had been vice-president in charge of operation of the Western lines, to the M.-K.-T. as president, he had long been recognized as one of the ablest operating men in the country, and under his direction Mr. Whitehead has had opportunity to participate in the virtual reconstruction of the railroad and its transformation from a property of low operating efficiency to one of high operating efficiency.

Mr. Whitehead possesses to a very high degree the combination of qualities requisite under present conditions to successful administration of the affairs of a railway. It is no longer sufficient that a railway executive shall have the kind of ability and qualities that sufficed prior to 15 years ago. Great changes have occurred since then in labor conditions and government regulation. These have made necessary a greater appreciation of the importance of industrial relations and public relations work. No railway officer understands better than Mr. Whitehead the need for these kinds of work. The M.-K.-T. has both a department of personnel and a department of public relations; and the relations between the railway and its employees and the public may confidently be expected to continue to improve under Mr. Whitehead's administration with favorable results that can be read in its statistics of earnings and expenses.

With the M.-K.-T. definitely upon its feet financially, the chief interest in its affairs now centers upon its position in the projected merger by Mr. Loree of a group of southwestern lines. Mr. Loree stated at St. Louis a few days ago that authority for the purchase by the Kansas City Southern of a majority of stock in the M.-K.-T. and the Cotton Belt will immediately be asked of the Interstate Commerce Commission. Press reports have quoted Mr. Loree as saying that the projected merger will not be complete in the ordinary sense, but that the lines making up the system would retain their corporate identities. The Katy will be an important part of the system and perhaps the most important part.

Charles N. Whitehead was born on January 23, 1878, at Princeton, Ill., and was educated in the public schools. He was brought up in a railroad atmosphere since his father was a railroad man. Mr. Whitehead has spent virtually his entire life in Katy territory and in the Katy's

service. He first entered railroad service as a messenger boy in the Cairo, Ill., freight office of the St. Louis Southwestern at the age of 14 years. He began his long service with the Missouri-Kansas-Texas in 1892 as a messenger in the freight department. Later he was promoted as stenographer, clerk and then chief clerk in the freight and ticket office. In 1895 he was transferred as a clerk to a superintendent's office and three years later was transferred to the general freight department. Mr. Whitehead was transferred to the office of the general attorney in 1900 and returned to a superintendent's office in 1901, then being transferred to the office of the general counsel in 1905. Mr. Whitehead was promoted to assistant secretary in 1905 and a year later was elected secretary. In 1913 he was elected secretary and treasurer and a year later was promoted to assistant to the president. He was elected vice-president in 1914. In 1918 and 1919 Mr. Whitehead served as general manager, being appointed federal manager of the Katy during the period of federal control. He was appointed chief operating officer for the receiver in 1920 and held that position until April 1, 1923, when he was elected executive vice-president.

Railway Interest Bill Approved

WASHINGTON, D. C.

THE bill providing for an extension at a reduced rate of interest of railroad indebtedness to the federal government, introduced by Senator Gooding, was approved in general, but with some modifications, in a letter from Secretary Mellon to the Senate committee on interstate commerce, read at a meeting of the committee held to consider the bill on April 13. Secretary Mellon recommended a minimum rate of 4¼ per cent and a maximum maturity of 30 years, instead of the 40 years proposed in the bill. He also said that the maximum of 30 years should not be allowed in each case.

Secretary Mellon said in the letter that when the Transportation Act was passed it was expected that the indebtedness of the carriers growing out of the federal control period would be liquidated in ten years, or by 1930, and that the rate of interest fixed, 6 per cent, has been an inducement to most of the roads to get out of debt to the government by private financing. It would be sound public policy, he said, not to extend the loans except in cases where the carrier's credit is such that it cannot raise the funds in the market and in such circumstances it would be equitable to permit refunding for a longer period at a lower rate of interest in order to place the weak roads on a parity, in this respect, with the stronger roads. As the cost of money to the government has been about 4.1 per cent he suggested that the rate in the bill be made not lower than 4¼ per cent.

Alfred P. Thom, general counsel of the Association of Railway Executives, urged that the committee report the bill as speedily as possible in order to get it before the Senate and many of those present urged that a report be authorized with amendments which Senator Gooding desired, but Senators Wheeler, Howell and Couzens objected and it was decided to wait till the next day.

Senator Gooding proposed to provide in the bill that the difference between the rate of interest allowed and the present 6 per cent rate be the minimum amount of the annual amortization payment required, and that a certificate from the Interstate Commerce Commission that the extension of the indebtedness would assist the carrier to properly serve the public should also be required. He also suggested an amendment to provide that the Secretary of the Treasury should not exercise his discretion under the bill in the case of the Chicago, Milwaukee & St. Paul unless satisfied that the fees and expenses of the reorganization of that road were reasonable.

Mr. Thom filed with the committee a statement by F. D. Underwood in part as follows:

When the government charges the carriers to whom it has loaned money an unnecessarily high rate of interest, it defeats the very purpose of the Transportation Act, because the roads which have borrowed from the government are less advantageously situated than some others, and are the very roads whose relative financial situation the Transportation Act was intended to improve. The reduction of the government's interest charge to roads to which it has loaned money to a rate approximating the cost to the government is obviously in line with the general policy of the Transportation Act, and failure to make such reduction would be contrary to that policy.

Reduction in the interest rate will make it possible, without unduly burdening the companies paying the interest, to make provision for payments by them into a sinking fund to retire the bonds within a reasonable period. This will be to the advantage of the government through securing earlier payments of principal in some cases.

Much has been said of late about the desirability of keeping down or reducing the interest bearing debts of railroad companies. A plan for retirement of the government debt by sinking fund payments would be a desirable step in the direction of reducing such interest bearing debts and in accordance with the public policy advocated by those who believe in the restriction so far as practicable, and the reduction where possible, of the interest bearing debts of railroad companies.

If the government has to be paid on the due dates of the notes which the government now holds, of course it will have to be done by a refunding operation.

The financial situation of the Erie Railroad Company would be substantially improved by reasonable provisions for the extension at a reduced rate of interest of its indebtedness to the government, and provision for sinking fund payments.

Immediately after the passage of the Transportation Act the Interstate Commerce Commission, after public hearings, determined that in order best to meet the transportation needs of the country, loans under Section 210 would have to be confined to loans to enable carriers to meet their maturing indebtedness and thus preserve their credit, to acquire freight train equipment, and to make such additions and betterments to roadway and structures as would directly promote the movement of freight traffic. Passenger equipment and also all items of additions and betterments, such as elimination of grade crossings, not increasing revenues, were excluded because of the demands upon the fund available. These principles were applied by the Commission in authorizing the loans made to the Erie Railroad Company.

The Erie system continues to be a very important factor in the national transportation system, and any relief which it can obtain from fixed charges for the use of capital should redound to the benefit of the public through increasing the company's ability to finance improvements for the betterment of its service, which are constantly required and could usefully be installed at once, beyond the present financial ability of the company.

The increased earning capacity resulting from such improvements would again increase its ability to make further needed improvements. The beneficial effect upon the public service would thus be cumulative.

Of course, some expenditures for improvements are made pursuant to some public obligation rather than for the purpose of increasing revenue, and do not in fact increase revenue. Perhaps the most important example of this class of expenditure is the elimination of grade crossings. It is in the public interest that the railroad company's ability to contribute to the extent of its legal obligation to such projects should not be lessened by reason of the government requiring it to pay an interest rate which gives the government a profit.

The interest paid by the Erie Railroad Company and New York, Susquehanna & Western Railroad Company on their obligations to the government has already run to upwards of $2,300,000 beyond 4 per cent per annum from the time the government expended the money.

A favorable report on the bill with amendments requiring at least the amount of the interest reduction to be used each year to curtail the indebtedness, and a certificate of the Interstate Commerce Commission in each case, was adopted by the committee at its meeting on Wednesday. The committee also adopted the amendments suggested by Secretary Mellon providing for a maximum period of 30 years instead of 40 years and a minimum interest rate of 4¼ per cent instead of 4 per cent as originally provided in the bill. Most of the discussion of the bill has been on a basis of 4¼ per cent and 30 years. The amendment relating to the St. Paul was not adopted.

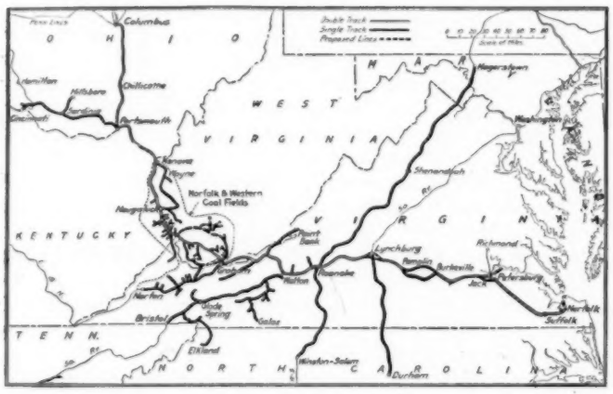
Norfolk & Western

In 1925 *had operating ratio of* 64.57, *transportation ratio of* 26.74 *and earned* $18.67 *on common stock*

THE annual report of the Norfolk & Western for the year ended December 31, 1925, shows net income after interest and other charges of $26,564,758, equivalent after allowance for dividends on the preferred stock to $18.67 a share on the company's common stock. In 1924, the net income was $18,243,348 which was equivalent after preferred dividends to $12.85 a share on the common. The 1925 net income was the largest ever reported by the Norfolk & Western. It represented an increase of 46 per cent over that for 1924 and was 22 per cent greater than the net income the company reported in its best year previous to 1925—the calendar year 1916 when net income totaled $21,800,074.

A Combination of Several Factors

The Norfolk & Western's prosperity in 1925 resulted from a combination of several factors. One was the strike



The Norfolk & Western

in the anthracite coal mines which resulted in the bringing to the northeastern markets of coal needed to supplant the lacking anthracite. Another was the continuing effect of the Jacksonville wage agreement which because of the high union wage sales prevents the union coal fields lying mostly north of the Ohio and Potomac rivers from competing advantageously with the non-union mines south thereof. Third, the Norfolk & Western has the advantage of excellent outlets for the coal produced along its lines. These include the great tidewater terminal at Norfolk as well as the lines of the Pennsylvania which are available advantageously to carry coal received from the Norfolk & Western to the northwest, to the Lake ports or to the busy industrial areas between the Ohio river and the Lakes. Most important of all, perhaps, in Norfolk & Western success is the efficiency of the property's management. The company is noted for the care it has always taken to have its plant kept up to the demands upon it for transportation service. The result is that the property has been able so to keep its costs of operation in hand that it has had no particular difficulty in reporting very fair net earnings where traffic volume has been below normal. Naturally, when unusual demands for service have been made, the company has found itself readily able to meet these demands and to carry a very fair share of the increase in gross income to net railway operating income and to net income after charges.

Most of Mileage Owned

The Norfolk & Western operates a total of 2,241 miles of line. It owns outright 2,204 miles of this total, leases only 21 and has trackage rights over 15. This unusually large proportion of owned mileage is in sharp contrast with the anthracite carriers in particular, most of which operate the larger share of their mileage under lease. The company's lines extend from Norfolk, Va., to the coal fields adjacent to the meeting point of the boundaries of Virginia, West Virginia and Kentucky, and from there north to the Ohio river with the main line extending beyond to Columbus, Ohio. There is a branch extending from Roanoke up the Shenandoah Valley to Hagerstown, Md., and branches also to Durham, N. C., to Winston-Salem, N. C., to Bristol, Tenn., to Norton, Va., and from Portsmouth, Ohio, to Cincinnati. The most important connections with the Pennsylvania System are made at Hagerstown, at Columbus and at Cincinnati and the larger share of the traffic to the lakes moves over the Pennsylvania from Columbus to Lake Erie at Sandusky. The Norfolk & Western owns half an interest in the Winston-Salem Southbound, the other half being owned by the Atlantic Coast Line. The line of the Norfolk & Western between Lynchburg, Va., and the terminus of the Bristol branch forms, with lines of the Southern, a through traffic route between Chattanooga and Memphis and the Northeast.

The main line of the Norfolk & Western is now double tracked for its entire length and between Naugatuck, W. Va., and Kenova, three lines are available. The company's line across the Blue Ridge mountains is electrified. The mileage now operated by electricity extends from Bluefield to Iaeger, a 22-mile extension to the latter point having been completed early in 1925.

An important feature to be noted in connection with

TABLE I.—NORFOLK & WESTERN OPERATING RESULTS, SELECTED ITEMS, 1916 TO 1925.

Year	Mileage	Revenue ton-miles	Revenue passenger miles	Rev. per ton-mile cents	Total operating revenues	Total operating expenses	Net operating revenues	Operating ratio	Net railway operating income	Net after charges	Net charges for additions and betterments
1916	2,080	12,110,423,000	277,621,000	0.422	59,449,982	33,508,732	25,941,249	56.36	24,866,782	21,800,074	.....
1917	2,085	12,456,970,000	321,849,000	0.453	65,910,242	41,161,503	24,748,739	62.45	21,928,006	18,946,137	8,572,809
1918	2,084	12,255,304,000	393,969,000	0.561	82,004,034	61,579,297	20,424,737	75.09	16,450,087	15,804,526	13,515,118
1919	2,088	10,026,871,000	422,629,000	0.625	76,925,599	64,021,285	12,904,314	83.22	8,176,538	14,513,779	9,178,750
1920	2,200	11,063,033,000	346,264,000	0.668	88,489,356	84,943,837	3,545,519	95.99	3,612,843	12,496,788	14,171,405
1921	2,226	8,482,095,000	292,223,000	0.793	80,718,802	64,346,857	16,754,418	79.72	14,870,020	10,043,181	5,297,395
1922	2,238	10,422,301,000	261,756,000	0.745	90,352,887	68,052,804	22,337,540	75.32	18,624,468	14,554,989	10,733,607
1923	2,238	11,161,523,000	296,044,000	0.729	95,494,687	72,598,871	22,870,888	76.05	19,877,677	18,788,497	5,956,658
1924	2,241	12,130,124,000	262,306,000	0.699	94,580,674	69,875,109	27,832,202	73.88	22,463,369	18,243,348	25,884,025
1925	2,241	13,683,557,000	235,135,000	0.682	105,218,991	67,934,815	37,284,176	64.57	31,510,952	26,564,759	24,359,053

Standard return for operations during federal control or average annual net railway operating income for three years ended June 30, 1917, $20,634,142.

the Norfolk & Western organization is the fact that it owns the entire capital stock of the Pocahontas Coal & Coke Company. This company owns a very large acreage of coal lands which it leases to individuals and mining companies on a royalty basis and it is of interest that one of the largest operators is a subsidiary of the United States Steel Corporation which is said to supply coal to the steel plants at Gary and South Chicago. There is an agreement between the Norfolk & Western and the Pennsylvania whereby the latter company agrees to make up one-third of whatever may be necessary to enable the coal company to pay interest on its $14,500,000 outstanding bonds which are also a joint obligation of the Norfolk & Western and the coal company itself. The coal company at one time did not earn its interest charges. It is earning them today but has not accrued any net income to the railroad which owns it.

Another important affiliation of the Norfolk & Western that should not be omitted is its recent lease of the Virginian which was effected in May, 1925, but which has not yet been formally approved by the Interstate Commerce Commission. The lease calls for the payment of 6 per cent dividends on the preferred and common stocks of the Virginian. The point has been made that the two properties do not compete and that great advantage would accrue to the operators served by the Virginian because they will be given outlets to the western part of the country which they do not now have, the Virginian having been built primarily as a facility to carry coal from the West Virginia fields to tidewater.

TABLE II.—COMPARISON OF SELECTED FREIGHT OPERATING STATISTICS.

	1925	1920	% of change Inc.	% of change Dec.
Mileage operated	2,231	2,190	1.8	...
Gross ton miles (thousands)	27,037,267	20,984,119	28.8	...
Net ton-miles (thousands)	14,544,624	11,669,546	24.7	...
Freight train-miles (thousands)	10,345	9,907	4.4	...
Freight locomotive-miles (thousands)	13,008	13,167	...	0.6
Freight car-miles (thousands)	555,378	441,211	26.0	...
Freight train-hours	839,343	978,491	...	14.1
Tons of coal consumed by freight locos.	2,242,980	2,123,226	5.5	...
Car-miles per day	39 0	34.3	13.7	...
Net tons per loaded car	43.7	42.1	3.8	...
Per cent loaded to total car-miles	60.0	58.2	1.8	...
Net ton-miles per car day	1 022	908	11.3	...
Freight cars per train	54 7	45.5	21 2	...
Gross tons per train	2,613	2,118	23.5	...
Net tons per train	1,406	1.178	11.9	...
Train speed, miles per train-hour	12 3	10 1	21 9	...
Gross ton-miles per train hour	32,212	21,445	57.6	...
Net ton-miles per train-hour	17,319	11,926	45.3	...
Lb. coal per 1,000 gross ton-miles	147	.....	...	...
Loco-miles per loco-day	54 6	53 0	1.1	...
Per cent freight locos. unserviceable	11.2	31.4	...	20.2
Per cent freight cars unserviceable	2.9	6.9	...	4.0

The Coal Traffic

The Norfolk & Western serves five coal districts which lie adjacent to each other. These include the Kenova, Thacker, Tug River, Pocahontas and the Clinch Valley. The coal traffic in 1925 was much the largest in the company's history. The tonnage totaled exactly 38,122,834. This was 17 per cent greater than in 1924 in which year the coal tonnage exceeded all previous records. The percentage of the coal revenue tons to the company's total revenue tonnage was, in 1925, 75.84 per cent. In 1923 the percentage was 73.33 and in previous years it has averaged between 60 and 70 per cent. One of the factors of greatest interest in connection with the road's coal tonnage has been the increasing proportion going, in recent years, towards the lakes and the west. This has resulted from two causes. One has been the falling off of export tonnage since it reached its peak in 1916 and the other has been the result of the Jacksonville wage agreement which has given the non-union mines of the Norfolk & Western a preferred position even in the markets which lie much closer to the union mines in southern Indiana and Illinois. The usual trend was undoubtedly somewhat out of line in 1925 because of the large tonnage which moved in the latter part of the year via Hagerstown and the Pennsylvania to the markets which formerly had to depend principally upon anthracite.

The striking feature of Norfolk & Western operations is the figures which show its advantageous position from the standpoint of operating efficiency. One of the things worth pointing out rather explicity is the unusually large expenditures made for additions and betterments. Since 1918 the charges for additions and betterments have approximated $10,000,000 annually. In 1924 the charges totaled $25,884,025 or twice the average for the preceding six years and in 1925 they again totaled $24,359,053. The expenditures have been divided approximately half and half between roadway and equipment.

Operating Results

In 1925 as compared with 1924 the Norfolk & Western had an increase in its coal traffic of 17 per cent. Its total revenue tons increased 13.15 per cent and its revenue ton-miles 12.81 per cent. The freight revenue increased 10 per cent. There was a decrease in passenger earnings of 9.16 per cent. The operating revenues totaled $105,218,991 which was an increase of $10,638,317 or 11.25 per cent over 1924. These revenues were the largest that the company had ever reported. The operating expenses totaled $67,934,815 which in spite of the large increase in traffic represented a decrease of $1,940,293 or 2.78 per cent as compared with 1924. The result was an operating ratio of but 64.57 as compared with 73.88 per cent in 1924 and the 1925 operating ratio was the lowest reported since 1917, in which year the figure was 62.45 per cent. It is particularly noteworthy that the company's ratio of transportation expenses to the total operating revenues in 1925 was but 26.74. In 1924 the company had reported 29.9 per cent. The transportation ratio was the lowest figure reported since 1916 and both as relates to the operating ratio and the transportation ratio the Norfolk & Western figures for 1925 were the lowest attained by any of the leading roads in the United States.

Figures of this kind readily explain the net railway operating income of 1925 of $31,310,952 as compared with $22,436,369 in 1924 or an increase over the 1924 total of no less than 40.28 per cent. A table in the Norfolk & Western annual report shows that this net railway operating income in 1925 was equivalent to 7.59 per cent return upon the company's property investment. While the net railway operating income itself was the largest in the company's history the rate of return upon the investment was not as large as in the fiscal year ended June 30, 1916—8.48 per cent—or in the calendar year, 1916—8.59 per cent. The answer is, of course, that while the 1925 net railway operating income as compared with the calendar year 1916 showed an increase of about 22 per cent, the property investment showed an increase of about 43 per cent. It has already been noted that the net income after interest and other charges in 1925 was $26,564,759, that this was the largest figure reported in the company's history and was 46 per cent greater than 1924. The really interesting feature in connection with the size of this figure is the fact that the company's dividends, including 4 per cent on the preferred and 7 per cent regular on the common and 1 per cent extra on the common totaled $11,900,000 which means that the dividends were earned 2⅓ times.

The Unusual Operating Statistics

Table II, which shows the comparison of selected freight operating statistics for 1925 as against 1920, is

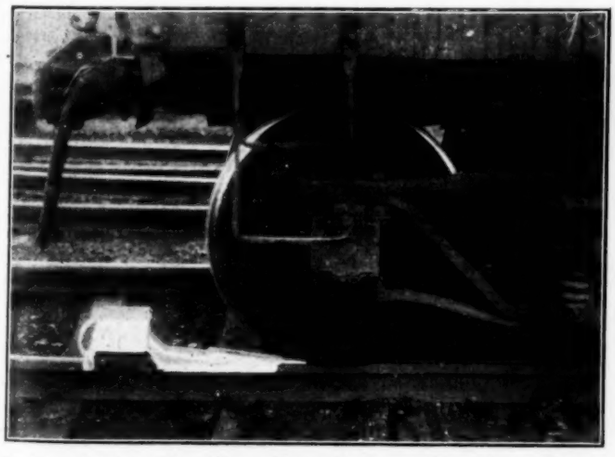
one of the most remarkable tabulations that has yet been shown in any of these review articles published thus far this year in *Railway Age*. It shows, for example, that in 1925 as compared with 1920 the Norfolk & Western handled 24.7 per cent more net ton-miles with only 4.4 per cent freight-train-miles and with 0.6 per cent less freight-locomotive-miles and 14.1 per cent less freight-train-hours. These results were obtained by an increase of 23 5 per cent in the gross tons per train and of 11.9 per cent in the net tons per train and with an increase in the miles-per-train-hour of from 10.1 to 12.3 or 21.9 per cent.

It must require operating efficiency of a high order to maintain an average of 2,613 gross tons per train and to keep these trains moving with such dispatch and freedom from unnecessary delay as to secure an average speed of 12 3 miles per train-hour. The result is shown in the remarkably high figure of 32,212 gross ton-miles-per-train-hour representing an increase of 57.6 per cent over the average for 1920 or similarly to show an average of 17,313 net ton-miles-per-train-hour 45.3 per cent greater than in 1920. Finally, one cannnot help noticing that the Norfolk & Western came through 1925 with an average of but 11.2 per cent of its freight locomotives unserviceable and but 2.9 per cent of its freight cars in unserviceable condition.

In these articles the comment has been made on various occasions that the operating statistics sometimes prove so involved that it is difficult to secure from them a thoroughly adequate picture without an elaborate study of the relative importance of one figure as compared with another. It is believed, however, that the tabulation here shown for the Norfolk & Western paints an unusual picture of striking railway operating skill.

Automatic Self-Releasing Car Retarder

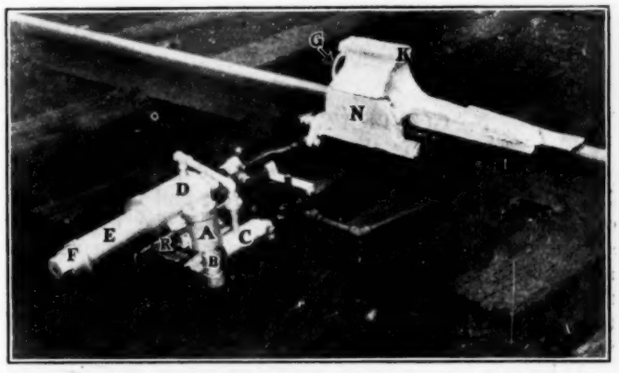
AN automatic self-releasing car retarder which can be operated electro-pneumatically, manually or in connection with other switches has been in service for over a year in the Potomac, Va., yards of the Richmond, Fredericksburg & Potomac. Its use is not limited



A Car Which Has Been Brought to a Stop by a Hand Operated Retarder

to gravity yards; it can be used in flat switching yards, around engine terminals, coaling and freight stations, piers, etc., in place of the old type locomotive or car chock.

The electro-pneumatic operation of this device is controlled by a magnet *A* shown in the illustration. When the switch, located in the tower or any other point, is closed the magnet *A* opens the pin valve *B* allowing the air to enter the chamber *C* for delivery to the cylinder *D*. This operation places the stop on the track ready for use. While in this position the rod *R* forms the necessary contact for the lighting of a small bulb in the tower, indicating to the operator that the device is on the rail. This feature is for night operation, where the stops are used at

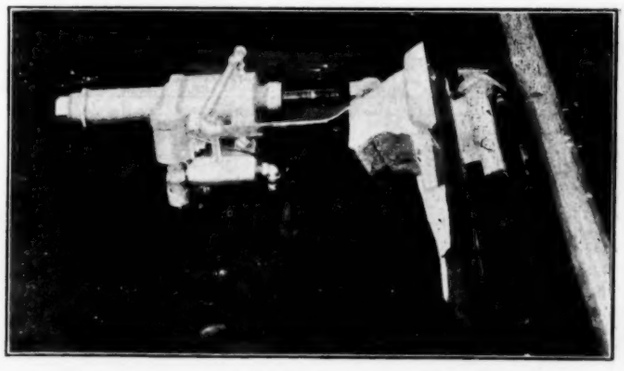


Electro-Pneumatically Operated Retarder on the Rail Ready to Receive a Car

distant points. When the switch is opened, the device is released from the rail by means of a spring located in the cylinder *E*. If it is desired to operate the retarder by hand, the adjusting screw *F* is loosened and the handle *G* is used.

These retarders can be furnished for hand operations only, in which case a bracket and hinged holder is applied to the rail.

A sand pocket is formed in the head or body of the casting in which sufficient sand can be placed for several days



The Automatic Car Retarder in Rest or Normal Position

use. The sand falls through a perforated plate when the stop is in position on the rail. The purpose of this is to increase the friction between the car wheels and the rail.

One of the illustrations shows the retarder on the rail ready to receive a car. When the car mounts the retarder, the tread of the wheel strikes the shoulder *K*, which releases the retarder from its permanent hinged holder *N*. The device is automatically released by the car wheel rolling down the incline from the shoulder.

This device has been patented by Robert E. McGahey, master mechanic, Richmond, Fredericksburg & Potomac, Potomac Yard, Va.

How a Road May Anticipate Its Tie Requirements

A comparison of several methods of determining tie life to check renewals

By Marcus A. Roby
Valuation Department, Union Pacific System, Salt Lake City, Utah

W. F. GOLTRA'S article and tabulations on "What is the Average Life of Ties" which appeared in the *Railway Age* of August 15, 1925, have created widespread interest and consideration of this subject. Some method should be evolved to spread operating costs to meet actual retirements and renewals to maintain ties in newly constructed lines, or the railroads operating such lines and subject to recaptures, may be forced to pay excess recapture for years when the actual retirements are light.

A branch line railroad about 85 miles long, having 239,723 untreated ties, was constructed in 1901. The record of tie retirements kept in accordance with standard practice is shown in Table 1.

From installation in 1901 to 1918, the traffic was constantly light. Renewals were made with the same class of ties as originally installed, and no marked changes were made in the tie system. For purpose of identification, the ties originally installed are designated in this article as first-cycle ties; the first renewals as second-cycle ties; the second renewals as third-cycle ties, and so on. Since the traffic has been constant and the class of ties unchanged by renewals, the service lives of the second, third, and succeeding cycles, are assumed to be the same as the service life of first-cycle ties; therefore, the percentages of retirements, Column 3, Table 1, apply to second and third-cycle ties as well as to first-cycle ties.

From Table 1 it is seen that out of 239,723 first-cycle

TABLE No. 1

Year	Number of Ties Retired	Per Cent of Original Installation (239,723 ties)	Remarks
1906.....	494	0.20	
1907.....	2,977	1.24	
1908.....	6,731	2.81	
1909.....	25,296	10.55	
1910.....	30,748	12.83	
1911.....	32,689	13.64	
1912.....	25,267	10.53	
1913.....	40,304	....	Includes retirements of renewals.
1914.....	28,280	....	Includes retirements of renewals.
1915.....	15,687	....	Includes retirements of renewals.
1916.....	13,221	....	Includes retirements of renewals.
1917.....	22,712	....	Includes retirements of renewals.
1918.....	16,078	....	Includes retirements of renewals.
Total.....	260,484	....	

Table No. 2

Description	Year	% Retired of 494 Ties	No. Ties Retired	% of 2,977 Ties	No. Ties Retired	% of 6,731 Ties	No. Ties Retired	% of 25,296 Ties	No. Ties Retired	% of 30,748 Ties	No. Ties Retired	% of 32,689 Ties	No. Ties Retired	% of 25,267 Ties	No. Ties Retired	% of 40,252 Ties	No. Ties Retired	Total No. 2nd Cycle Ties Retired.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
(B) No. of Ties 1st Cycle retired	1-1906		494															
	2-1907				2977													
	3-1908						6731											
	4-1909								25296									
	5-1910										30748							
	6-1911												32688					
	7-1912														25255			
	8-1913																40240	
No. Ties 2nd Cycle Retired																		
	9-1911	.20	1															1
	10-1912	1.24	6	.20	6													12
	11-1913	2.81	14	1.24	37	.20	13											64
	12-1914	10.55	52	2.81	84	1.24	83	.20	50									269
	13-1915	12.83	63	10.55	314	2.81	189	1.24	314	.20	61							941
	14-1916	13.64	67	12.83	382	10.55	710	2.81	711	1.24	381	.20	65					2,316
	15-1917	10.53	52	13.64	406	12.83	864	10.55	2669	2.81	864	1.24	405	.20	50			5,310
	16-1918	16.78	83	10.53	313	13.64	918	12.83	3245	10.55	3244	2.81	918	1.24	315	.20	80	9,114 + 2734 = 11848
Total No. Ties 2nd Cycle retired			338		1542		2777		6969		4550		1388		365		80	18,027 + 2734 = 20,761
															(Correction)			20,761

NOTE.—Line B drawn diagonally across Table 2 shows the number of first cycle ties retired and renewed with second cycle ties, as indicated by the years on horizontal lines 1 to 8, inclusive. Lines 9 to 16, inclusive, show in alternate columns (3, 5, 7, etc.) the per cent rate of retirements from Table 1, and in the intermediate columns (4, 6, 8, etc.) the number of second cycle ties retired for each year from 1911 to 1918, inclusive, according to each installation of second cycle ties. Line 17 represents the total number of second cycle tie retirements, determined by adding the ties retired—lines 9 to 16, inclusive.

Column 1 of Table 2 gives a general description of the items considered. Column 2 gives the line, number and year. Column 3 gives the percentages taken from Table 1 to be applied to the 494 second cycle ties installed in 1906, to determine the annual retirements of these second cycle ties. Column 4 shows for each year the number of tie retirements of second cycle ties installed in 1906, which is obtained by multiplying the total of 494 ties by the per cent rate of retirements in Column 3. Columns 5 and 6; 7 and 8; 9 and 10; 11 and 12; 13 and 14; 15 and 16; and 17 and 18, are similar respectively to Columns 2 and 3, using the second cycle ties set up in each column in place of the 494 ties given in description of Columns 2 and 3.

Column 19 shows the total number of second cycle ties retired up to 1918.

ties originally installed in 1901, the first retirements were made in 1906, five years later, and that they amounted to 494 ties or 0.2 per cent. It follows that out of the 494 second-cycle ties installed in 1906, 0.2 per cent, or 1 tie, should have been the first retirement five years from 1906, or in 1911. Following the theory outlined for the first annual retirement of the 494 second-cycle ties, the second annual retirement amounting to 1.24 per cent of 494, or 6 ties, should have been retired in 1912; and so on, according to the percentages in Column 3 of Table 1, until the 494 ties are exhausted.

The same percentages of retirements, applied to 2,977 second-cycle ties installed in 1907, will give the annual retirements of these 2,977 ties by years, and so on to each succeeding year. In this manner all retirements of second-cycle ties up to 1918 are computed and the computations tabulated in Table 2.

Calculations from Tables 1 and 2 will show that the retirements of third-cycle ties, commencing in 1916 are so small that they may be ignored, and therefore, all retirements from 1901 to 1918 are assumed to be made with first and second-cycle ties. Table 2 shows 18,027 second-cycle ties retired from 1911 to 1918, and Table 1 shows 260,484 total tie retirements from 1901 to 1918. Subtracting the 18,027 tie retirements of second-cycle ties from the 260,484 retirements of first and second-cycle ties, leaves 242,457 retirements of first-cycle ties, while installation records give 239,723 ties in the system, making an error of 2,734 tie retirements in calculation. This error will make a negligible difference as to the life of ties in practical results. The adjustment is here made in 1918 by simply increasing 9,114 tie retirements in 1918 shown in Column 19 Table 2 by 2,734 retirements, making 11,848 retirements of second-cycle ties for 1918.

It follows that, subtracting the retirements of second-cycle ties, Table 2, from the total retirements of all ties (Table 1) by years will give all retirements of first-cycle ties by years. This operation is tabulated in Table 3 in

TABLE No. 3

Years 1	No. retirements first and second cycle ties 2	No. retirements second cycle ties 3	No. retirements first cycle ties Col. 2 — Col. 3 4	Annual rate per cent retirements first cycle ties Col. 4÷239,723 5
1901	0	.....	.....	....
1906	494	.....	494	0.2
1907	2,977	.....	2,977	1.3
1908	6,731	.....	6,731	2.8
1909	25,296	.....	25,296	10.6
1910	30,748	.....	30,748	12.9
1911	32,689	1	32,688	13.7
1912	25,267	12	25,255	10.5
1913	40,304	64	40,240	16.8
1914	28,280	269	28,011	11.7
1915	16,687	941	14,746	6.1
1916	13,221	2,316	10,905	4.5
1917	22,712	5,310	17,402	7.2
1918	16,078	9,114 } 2,734 }	4,230	1.7
Totals	260,484	20,761	239,723	100.00

which Column 1 shows the year. Column 2 shows the total number of tie retirements by years including second-cycle ties, taken from Table 1. Column 3 shows the total number of tie retirements by years of second-cycle ties, taken from Table 2. Column 4 shows the total number of tie retirements by years of first-cycle ties, which is obtained by subtracting the figures in Column 3 from the figures in Column 2. Column 5 shows the annual percentages of retirements of first-cycle ties, which is obtained by dividing the number of annual retirements in Column 4 by 239,723, the total number of ties originally installed and subsequently retired. Computations are made to the nearest tenth.

The service lives of any set of ties newly installed may be defined by two factors—(1) average service life, meaning weighted average of individual tie units; (2) normal life, where normal life means that time in which 100 per cent amortization would occur on any existing set of ties, regardless of retirements of individual tie units. The weighted average life is the life generally used by engineers, while the normal life is the life generally used by accountants in determining amortization charges. The two are equal when all composite units have the same length life. On an old maintained tie system, it

TABLE 4

Computing average life of ties taken from Table No. 3, Columns 1 and 4, Standard Method

494	ties x	5	years' service	=	2,470 tie years
2,977	ties x	6	years' service	=	17,862 tie years
6,731	ties x	7	years' service	=	47,117 tie years
25,296	ties x	8	years' service	=	202,368 tie years
30,748	ties x	9	years' service	=	276,732 tie years
32,688	ties x	10	years' service	=	326,880 tie years
25,255	ties x	11	years' service	=	277,805 tie years
40,240	ties x	12	years' service	=	482,880 tie years
28,011	ties x	13	years' service	=	364,143 tie years
14,746	ties x	14	years' service	=	206,444 tie years
10,905	ties x	15	years' service	=	163,575 tie years
17,402	ties x	16	years' service	=	278,432 tie years
4,230	ties x	17	years' service	=	71,910 tie years
239,723	ties				2,718,618 tie years

2,718,618 tie years ÷ 239,723 ties = 11.341 years average life.

appears to me that the usual expression "Life of Ties" generally refers to normal life, and on a newly installed batch of ties, it generally refers to the weighted average life. The average and normal life of these ties are computed in Tables 4 and 5.

From these tables it is evident that when 494 ties having an average service life of 5 years are retired, and second-cycle ties having an average service life of 11.341 years are installed, both the average life and normal life of the

TABLE 5

Computing normal life of ties taken from Table No. 3, Columns 1 and 4—spreading tie retirements over service life.

494	tie retirements	÷	5 years	=	98.800 per year
2,977	tie retirements	÷	6 years	=	496.167 per year
6,731	tie retirements	÷	7 years	=	961.571 per year
25,296	tie retirements	÷	8 years	=	3,162.000 per year
30,748	tie retirements	÷	9 years	=	3,416.444 per year
32,688	tie retirements	÷	10 years	=	3,268.800 per year
25,255	tie retirements	÷	11 years	=	2,295.910 per year
40,240	tie retirements	÷	12 years	=	3,353.334 per year
28,011	tie retirements	÷	13 years	=	2,154.693 per year
14,746	tie retirements	÷	14 years	=	1,053.286 per year
10,905	tie retirements	÷	15 years	=	727.000 per year
17,402	tie retirements	÷	16 years	=	1,087.625 per year
4,230	tie retirements	÷	17 years	=	248.824 per year
239,723					22,324.454 per year

239,723 ties ÷ 22,324,454 ties per year = 10.738 years normal life.

tie system are accordingly lengthened. It may not appear manifest in this article, which is confined primarily to first-cycle ties, but computations which I have made show that when the tie system reaches a condition of equal annual renewals, making renewals with the same life ties as first-cycle ties, the average life of first-cycle ties is equal to the normal life of the resultant tie system or 11.341 years, and that the average life of ties in the resultant tie system is greater than 11.341 years. (See Table 7, lines 1-4.) During the development period in this example, from 1901 to that time when equal annual renewals become a practical constant, both the average and normal life of the tie system fluctuate, according to whether the retired ties have a longer or shorter life than the weighted average 11.341 year ties with which they are replaced from year to year.

From observation, we know that a set of ties newly installed will not be retired instantaneously. On the other extreme we likewise know that the annual retirements of original ties will not be equal from installation until the last tie is retired. Between these two extremes, (1) Miss Mable Thorne has presented an empirical formula, which in a particular example reads as follows:

$Y = 17.6 \div 2.718$ raised to the power $(x^2 \div 10.2692)$

This appears in the proceedings of the American Wood Preservers Association for 1918. (2) Mr. Goltra has

presented a set of tabulations, published in the *Railway Age* of August 15, 1925. (3) There is the mathematical law of probability expressed by the expansion of the binomial $(\frac{1}{2} + \frac{1}{2})^n$

Law of Probability Applied to Tie Retirements

To apply the mathematical expansion to retirements of a set of ties, let all tie retirements equal unity. One half the tie retirements will precede the average life point. One half the tire retirements will follow the average life point. Let "A" equal the average life in years. Then 2A equals the time of retirements in years from zero retirement at installation to zero last retirement, and 2A-2 will equal the years having retirements greater than zero.

Substituting 2A — 2 for "n" exponent of the binomial, we have the binomial $(\frac{1}{2} + \frac{1}{2})^{2A-2}$ where "A" represents the average life of ties.

Then expand by the binomial theorem, commencing from zero term.

$$0 + (\frac{1}{2}^{2A-2} + \frac{(2A-2)}{\text{---}}\ 2A-3\ (\frac{1}{2}) \times \frac{}{(\text{---}\ \text{---}\ \text{---}\ \text{---}\ \text{---})}$$

where each term represents in ratios with unity the annual tie retirements for respective years from zero installation.

Applying the expansion of the binomial to this example of ties: Using 11 years average life for 11.341 years in order to eliminate the fraction and substituting 11 years for "A" in the exponent of the binomial, we have $(\frac{1}{2} + \frac{1}{2})^{(2 \times 11)-2} = (\frac{1}{2} + \frac{1}{2})^{20}$ expanded by the binomial theorem. That is following the series $(\frac{1}{2})^n + n(\frac{1}{2})^{n-1}(n)$, etc., where $n = (2A - 2) = 20$.

TABLE No. 6

Year	$(\frac{1}{2} + \frac{1}{2})^{20}$ Expanded	Reduced numerator fraction com. denom. $(2)^{20} = 1{,}048{,}576$	Reduced per cent of total	Computing average life: Time of service years	Computing average life: Product of time of service Col. 5 by numerator Col. 3
1	2	3	4	5	6
1901....	0	0	.000	..	.....
1902....	$(\frac{1}{2})^{20}$	1	.000	1	1
1903....	20(")"	20	.002	2	40
1904....	190(")"	190	.018	3	570
1905....	1,140(")"	1,140	.109	4	4,560
1906....	4,845(")"	4,845	.462	5	24,225
1907....	15,504(")"	15,504	1.479	6	93,024
1908....	38,760(")"	38,760	3.696	7	271,320
1909....	77,520(")"	77,520	7.393	8	620,160
1910....	125,9 0(")"	125,970	12.013	9	1,133,730
1911....	167,960(")"	167,960	16.018	10	1,679,600
1912....	184,756(")"	184,756	17.620	11	2,032,316
1913....	167,960(")"	167,960	16.018	12	2,015,520
1914....	125,970(")"	125,970	12.013	13	1,637,610
1915....	77,520(")"	77,520	7.393	14	1,085,280
1916....	38,760(")"	38,760	3.696	15	581,400
1917....	15,504(")"	15,504	1.479	16	248,064
1918....	4,845(")"	4,845	.462	17	82,365
1919....	1,140(")"	1,140	.109	18	20,520
1920....	190(")"	190	.018	19	3,610
1921....	20(")"	20	.002	20	400
1922....	$(\frac{1}{2})^{20}$	1	.000	21	21
1923....	0	0	.000	22	0
	.....	1,048,576	.....	11.00	.....

11,534,336 ÷ 1,048,576 = 11.00 weighted average years. Total Col. 5.

In Table 6, Column 1 shows the service year for each term or ordinate. Column 2 shows the terms of the mathematical expansion of $(\frac{1}{2} + \frac{1}{2})$ raised to the 20th power. Column 3 shows the terms in Column 2 reduced to fraction form, giving the numerator over the denominator $(2)^{20} = 1{,}048{,}576$ for each year. Column 4 is a reduction of the fraction in Column 3 to a per cent of the total. Column 5 shows time of service years. Column 6 shows the product of service years (Column 5) with numerator of fraction (Column 3); thus computing the average life to show that the substitution of 2A — 2) as the power over $(\frac{1}{2} + \frac{1}{2})$ gives a correct expansion for annual retirements when A equals average life. Note that the average life of annual retirements equals 11 years, which is the original substitution for "A" in the exponent of the binomial.

As a progress report on the question, "Do Tie Retirements follow a Mathematical Curve?", a general comparison of the different methods and data available is set up in Table 7. In the first section of this table, Item 1 shows, at the installation of the first-cycle ties in service, the weighted average life computed as outlined in Table 4.

TABLE No. 7

First Section

Description	This example data	Mr. Goltra's tabulation	Miss Thorne's empirical formula	$2A-2$ / $(\frac{1}{2}+\frac{1}{2})$
1	2	3	4	5
At installation, 1st cycle ties in service—				
1. Average life, years....	11.341	11.000	11.00	11.00
2. Normal life, years....	10..33	9.019	10.50	10.50
At equal annual retirement, ties in service—				
3. Average life, years....	11.930	12.789	11.454	11.454
4. Normal life, years....	11.341	11.000	11.000	11..00

Second Section

Year	Annual per cent of retirements	Annual per cent of retirements	Annual per cent of retirements	Annual per cent of retirements
1901.....	0.0	0.0	0 000	0.000
1902.....	0.0	0.0	0.000	0.000
1903.....	0.0	0.0	0.006	0.002
1904.....	0.0	3.0	0.033	0.018
1905.....	0 0	3.0	0.149	0.109
1906.....	0.2	4.0	0.529	0.462
1907.....	1.3	6.0	1.545	1.479
1908.....	2.8	7.0	3.710	3.696
1909.....	10.6	8.0	7.335	7.393
1910.....	12.9	8.0	11.940	12.013
1911.....	13.7	9.0	15.990	16.018
1912.....	10.5	10.0	17.620	17.620
1913.....	16.8	8.0	15.990	16.018
1914.....	11 7	6.0	11.940	12.013
1915.....	6.1	5.0	7.335	7.393
1916.....	4.5	5.0	3.710	3.696
1917.....	7.2	5.0	1.545	1.479
1918.....	1.7	4.0	0 529	0.462
1919.....	0 0	3.0	0.149	0.109
1920.....	0.0	3.0	0.033	0.018
1921.....	0.0	3.0	0.006	0.002
1922.....	0 0	0.0	0.000	0.000
1923.....	0.0	0.0	0.000	0.000
	100.0	100.0	actual used 100.094 100.000	100.000

Item 2 shows, at installation of the first-cycle ties in service, the normal life computed as outlined in Table 5. Item 3 shows the average life of ties in service at equal annual renewals, which were installed and are still maintained with ties having a constant average life. Item 4 shows the normal life of ties in service at equal annual renewals, which were originally installed and are still maintained with ties having a constant average life. It will be noted that the normal life of ties in service must be equal to the weighted average life of ties to maintain, if the ties in service remain in a constant condition.

In the second section of the table Column 1 shows the year of the period used as a basis for this example. Column 2 shows the annual per cent of retirements in this example. (Table 3, Column 5.) Column 3 shows the annual per cent of retirements according to Mr. Goltra's tabulation for 11 year life. Column 4 shows the annual per cent of retirements according to Miss Thorne's empirical formula

$$Y = 17.6 \div 2.718 \text{ raised to the power } (x^2 \div 10.2692)$$

Column 5 shows the annual per cent of retirements in accordance with the mathematical formula $(\frac{1}{2} + \frac{1}{2})^{2A-2} =$ (Table 6. Column 4).

Miss Mable Thorne's formula, Column 4, gives the same practical results as the mathematical formula, Column 5, from which I surmise it is derived. The retirements in "this example," Column 2, show indications of following the same curve. Mr. Goltra's tabulation, Column 3, follows a different curve. It may be that Mr. Goltra's tabulation is based on tie retirements on fully developed heavily operated railroads, where a large per cent of retirements are caused by usage, or wear, while this example is taken from a lightly operated railroad where all retirements are due more or less to natural deterioration in which time is the principal factor.

Proposed Valuation for Recapture

I.C.C. examiner says Congress intended short-cut method of finding value under Section 15a

WASHINGTON, D. C.

A NEW kind of railroad value, called "value for the purposes of the recapture provisions of section 15a of the interstate commerce act," to be ascertained by "less thorough processes" than those of the valuation act, section 19a, is suggested by Examiner J. Paul Kelley of the Interstate Commerce Commission in a proposed report made public by the commission on April 10 in the cases involving the ascertainment of excess income of the St. Louis & O'Fallon and the Manufacturers' Railway of St. Louis, two roads controlled by the Adolphus Busch estate. This kind of valuation for individual railways corresponds somewhat to the tentative valuation of the railways as a whole for rate-making purposes used by the commission in 1920 in the rate advance case and the examiner says that values for rate-making and recapture purposes are the same.

Mr. Kelley says "it is necessary to conclude that Congress had in contemplation a valuation under section 15a that could be accomplished with greater facility and promptness than is required by the valuation under section 19a," since to delay "the new scheme of rate-making, with its concomitant provision for the creation of a railroad contingent fund" until the completion of the valuation "would in large measure defeat the purpose of the legislation." It is proposed, however, that the findings of value for recapture purposes shall be permanent for that purpose and that any revision as the result of any change in value under section 19a shall affect only the future.

To Be Argued as Test Case

The recommended findings will be the subject of argument before the commission, at a date yet to be set, and are expected to serve the purposes of a test case as to the method of valuation used, which is said to represent approximately the reasonable and necessary investment. This is based on underlying data collected by the Bureau of Valuation for the purposes of section 19a, although the tentative valuations had not been completed, and additional data, from which was constructed a value as of 1919, based to a considerable extent on 1914 prices, plus the cost of net additions to property since 1919. The commission has been holding hearings in many cases of railroads believed to have earned excess income, at which evidence similar to that presented in these cases has been introduced by the Bureau of Valuation, and a large part of its staff has been devoted to applying the information received under Order No. 3 as to additions and betterments to this short-cut process of valuation for recapture purposes.

The report recommends findings by the commission of the value and net railway operating income of the St. Louis & O'Fallon for recapture purposes for 1920, 1921, 1922 and 1923 but that the Manufacturers' Railway did not earn during those periods a net railway operating income subject to recapture, and that the two roads, although under common control and management, were not "operated as a single system" and therefore not entitled to combine their values and incomes for the purpose of calculating the percentage earned.

Pursuant to the requirements of section 15a the commission issued orders requiring carriers to report to it, among other things, the value of their property used in transportation service and their net railway operating income. The carriers were instructed to include in their reports statements in detail showing the manner in which the values were arrived at. In response to these orders, the St. Louis & O'Fallon and the Manufacturers' Railway, filed returns or reports for the period March to December, 1920, and for the years 1921, 1922, and 1923. Neither had accepted the guaranty of section 209. These reports show value and income for the two carriers separately and also for their properties combined, it being the claim of the carriers that they should be considered as under common control and management and operated as a single system, within the meaning of paragraph (6) of section 15a. A hearing was held on October 1 and 2, 1924, for the purpose of affording opportunity to submit evidence in support of their claims and for the receipt of any other evidence that might aid the commission in making the findings required by the statute. The claim of the carriers of the right to combine their returns was specifically set for consideration at the hearing. The latter contention was disposed of first in the report, which says:

Meaning of "System"

In the absence of any indication of different intent, it must be assumed that Congress had in mind the usual meaning of the word "system" as applied to railroads. That meaning implies an operating relationship and indicates that Congress intended operating unity to be the test of system relationship, and not ownership of tracks or methods of accounting. If Congress had intended that under this provision all railroads of common ownership should be grouped, there would have been no difficulty in expressing that purpose. Not only is there separate physical identity of these carriers, but there is no evidence of any correlation of function or present interdependence which would include them in the same system.

At the opening of the hearing, the carriers, represented by Clark & La Roe, entered a general objection to the proceeding on the ground that it was premature, the commission not having determined the final value of the carriers' property under section 19a of the act. "Similar objection has been raised in other proceedings of this kind, and therefore, the proper construction of the valuation provisions of the section will be considered," the report says, and after quoting the language of section 15a continues:

Section 15a Construed

These paragraphs must be considered in their relation to the section as a whole. It was well known to Congress that the valuation of the railroads under section 19a was not completed and could not for years be completed. To delay the inauguration of the new scheme of rate-making, with its concomitant provision for the creation of a railroad contingent fund, until the completion of such valuation would in large measure defeat the purpose of the legislation. Therefore, it was provided, in plain terms, that the commission should proceed at once to determine values for the purpose of carrying into effect the provisions of section 15a, in its discretion using material gathered in the process of the valuation under section 19a, so far as found usable. While the commission is required by paragraph (4) to "give consideration to all the elements of value recognized by the law of the land for rate-making purposes" it is necessary to conclude that Congress had in contemplation a valuation under section 15a that could be accomplished with greater facility and promptness than is required by the valuation under section 19a; and there is no inconsistency in the requirement that the results reached under section 19a shall be substituted for the values reached under the less thorough processes of section 15a, as and when the former shall be determined.

However, the revision thus made can affect only the future. While the valuations under section 15a are the best available, the findings reached are permanent and are not subject to revision as the result of any change in value under section 19a. While the commission is not bound in this proceeding by the processes or the results of the valuation under section 19a, it should observe the same principles of valuation as are applied in the latter, since both valuations are for rate-making purposes. Counsel for the carriers undertake to draw a distinction, holding that the valuations under section 15a are the more comprehensive; but that no such distinction was in the mind of Congress is reasonably apparent from the fact that an ultimate substitution of one for the other is required.

Value and Income of the O'Fallon

The value of the property of the O'Fallon has not been finally ascertained in the manner contemplated by section 19a. The investigation for the purpose is in progress. Its immediate object is the ascertaining and reporting of the value for rate-making purposes as of June 30, 1919. All property owned or used by the carrier for its purposes as a common carrier has been inventoried and its condition noted, and an examination of its records and accounts has been made, as of that date. Certain of the results of that investigation are available, and exhibits setting these forth have been made a part of the record in this case. At the time of the hearing no tentative valuation report had been served upon the O'Fallon. The usual accounting, engineering and land reports, prepared by the bureau of valuation in accordance with instructions, rules, regulations and methods approved by the commission had been served previously upon the carrier. Testimony and exhibits presented by the carrier and the bureau in this record, in so far as these relate to the value of this carrier's property, make reference to, and to a considerable extent are based upon, these underlying reports.

Underlying Reports Available

The information is therefore available for consideration in determining the value within the meaning of paragraphs (4) and (6) of section 15a of the act, for the several recapture periods. Such reports were prepared in final form by the bureau of valuation only after the carrier had been given the usual opportunity to take informal exceptions to them in preliminary form, and to confer with the bureau regarding such exceptions. It is to be understood, nevertheless, that upon the issuance of a tentative valuation, the carrier would have the right, under section 19a of the act, to file a formal protest of all items therein and to have a hearing.

This record contains the accounting report as of June 30, 1919, together with supplements bringing the data therein contained down through the respective recapture periods. This report contains a complete corporate and financial history of the O'Fallon; the obtainable data on the original cost of its property; an analysis of its investment in road and equipment account; statements of income and profit and loss, with the dividend history of the company; and the general balance sheet statements. The original cost to date of the property as a whole cannot be ascertained. No complete analysis of the investment in road and equipment account can be made, for the reason that the carrier's accounting records for the period from the date of its incorporation, June 1, 1896, to June 1, 1908, are missing.

Investment in Road and Equipment

Exhibits submitted by a witness for the bureau of valuation show the recorded investment in road and equipment of this carrier to have been $1,005,953 on June 30, 1919; $1,020,987 on December 31, 1920; $1,139,309 on December 31, 1921; $1,141,128 on December 31, 1922; and $1,114,445 on December 31, 1923. To the investment balances, the bureau accountants have taken certain exceptions, minor in amount. They point out that each of such balances includes an opening entry of $907,805, as of June 1, 1908, which represents an arbitrary amount, based on the estimated inventory value of the property prepared by the company's civil engineer as of that date.

For additions and betterments, less retirements it is shown that the O'Fallon made outlays in money during the period from June 1, 1908, to June 30, 1919, aggregating $98,148. The bureau of valuation also introduced exhibits showing the gross charges for additions and betterments to common carrier property subsequent to June 30, 1919, and the gross credits for such property as had been retired, resulting in the showing of the net increase or decrease in the original cost of common-carrier property. These exhibits also contain computations designed to show the average cost of the property placed in service during each of the recapture periods.

This record also contains the underlying engineering report. In this exhibit estimates of the cost of reproduction new and cost of reproduction less depreciation based upon normal 1914 prices are contained. These unit prices have been determined by consideration of the prices for labor and materials and the cost of constructing and equipping railroads during a five-year period ending June 30, 1914, in most instances, and for certain other costs of materials and construction periods up to 10 years, and in some instances exceeding 10 years, ending June 30, 1914, was surveyed.

There is also in evidence a statement of the cost of reproduction new and cost of reproduction less depreciation of the property which the carrier owned and used in performing transportation service on December 31, 1920, 1921, 1922, and 1923. The prices used by the commission's engineers in formulating these estimates are the normal 1914 prices, as previously defined. Reports of the carriers to the commission which have been verified show additions or retirements subsequent to June 30, 1919.

Cost of Reproduction at 1914 Prices

The following table shows the cost of reproduction new and cost of reproduction less depreciation of the property of the O'Fallon, exclusive of land, on June 30, 1919, and on December 31, 1920, 1921, 1922, and 1923, based upon the normal 1914 prices:

Date	Cost of reproduction new	Cost of reproduction less depreciation
June 30, 1919	$927,884	$678,506
Dec. 31, 1920	936,734	648,531
Dec. 31, 1921	950,553	692,923
Dec. 31, 1922	951,974	674,769
Dec. 31, 1923	940,708	645,466

No attempt was made by witnesses for the bureau of valuation to restate these estimates of reproduction costs upon the basis of prices for the four recapture periods. A witness for the bureau testified, however that, in his opinion, as a result of his investigation, changes in the levels of prices of labor and material between the 1914 prices as previously defined and the level at the end of each of the four recapture periods were represented by composite index numbers as follows: For December 31, 1920, 230; for December 31, 1921, 195; for December 31, 1922, 157; and for December 31, 1923, 174. He explained that his opinion was based mainly upon reports of the Bureau of Labor Statistics of the Department of Labor, showing general changes in "all commodity" prices for the dates just specified.

Since the hearing there has been made a part of the record, by appropriate agreement, a statement prepared by the carrier showing by accounts the actual costs of units of property put into use in common carrier service by the O'Fallon between July 1, 1914, and June 30, 1919, both inclusive. In the statement there is also shown the total estimated costs of reproduction new of the same items of property as these appear in the underlying engineering report, arrived at by the use of unit prices as of the 1914 pricing period. The comparison of the actual and the estimated costs for the 5 year period shows that the actual costs exceeded the estimated costs by $38,843.

Carriers' Estimate of Reproduction Cost

In rendering its returns, the O'Fallon stated as the value of its property the amount of its investment as shown by its books of account and as stated in its annual reports to the commission. At the hearing a witness for the carrier submitted evidence of value based upon the inventories made by the commission's valuation engineers in pursuance of the section 19a investigation, to which had been applied prices as of the 1914 period, thereby obtaining the cost of reproduction new as stated in the underlying engineering report. By the use of ratios said to represent increases in prices of labor and materials between the year 1914 and the respective recapture periods he undertook to state the cost of reproduction new of the road and equipment as of December 31, 1920, 1921, 1922, and 1923. To the resulting reproduction cost estimates he added the value of land used for transportation purposes as stated in the underlying land report in the section 19a proceedings. He also added cash actually on hand and the balance in the material and supplies accounts. By this process he arrived at values for the respective recapture periods as shown by the following table:

	Dec. 31, 1920	Dec. 31, 1921	Dec. 31, 1922	Dec. 31, 1923
Road and equipment (not including land)	$2,112,708.72	$1,562,247.84	$1,471,026.57	$1,639,048.77
Land	50,556.25	50,556.25	50,556.25	50,556.25
Cash	47,362.14	77,176.93	78,022.53	66,223.59
Material and supplies	84,912.27	48,651.17	42,180.07	63,123.70
	$2,295,539.38	$1,738,632.19	$1,641,785.42	$1,818,952.31

The foregoing summary of evidence in the record is sufficient to show that there are presented for consideration the following: (1) The carrier's book record of investment. This cannot be accepted in its entirety as an accurate statement of actual outlay for the property for reasons previously given. (2) The reproduction cost new and less depreciation estimates as of June 30, 1919, and as of December 31, in each of the recapture periods, for property other than lands. The commission's valuation engineers and the carrier's engineers presented these estimates in

different forms. They differ in that the commission's engineers set forth estimates of cost of reproduction less depreciation and the carrier's engineers stated only cost of reproduction new estimates. They differ also in that the commission's engineers made no application to the revised inventories of any unit prices, except the normal 1914 prices, although they submitted testimony regarding index numbers showing general price increases for the recapture periods; whereas the carrier's engineers applied to the revised inventories, as appraised on the 1914 price basis, ratios which in their opinion indicated the increased costs of reproduction new for the several recapture periods. (3) The value of lands. As to these the commission's appraisers and the carrier's witnesses are in substantial agreement. (4) Studies regarding working capital. The carrier's witnesses included in their computed values the amounts of cash and the book charges for materials and supplies on hand at the end of each recapture period. The commission's valuation accountants presented the results of their analyses of the carrier's accounts, made for the purpose of determining the extent of the actual need of investment in cash and in materials and supplies to take care of demands for these in connection with the performance of transportation service. It is clear that during the period, 1919 to 1923, an investment of approximately $50,000 in a stock of materials and supplies amply met the carrier's needs for working capital purposes.

Other Elements of Value

In addition to these elements of value, stated in more or less definite sums of money, the record presents for consideration descriptions of the carrier, of its traffic, of the territory in which it operates, its history, and summaries of the results of its operation. There are in evidence also statements showing the cost of units of property added, and deductions for property retired, between June 30, 1919, and the end of each of the recapture periods. The statute directs that in determining values pursuant to section 15a the commission "* * * shall give due consideration to all the elements of value recognized by the law of the land for rate-making purposes * * *." This shows that values of rate-making and recapture purposes are the same. There is a general rule that the determination of value for rate-making purposes is not a matter of formulas, but that it is the result of judgment based upon a consideration of all relevant facts. *Minnesota Rate Cases*, 230 U. S. 382. The commission uniformly observed that rule in the ascertainment of values for rate-making of railroad properties in compliance with requirements of section 19a of the interstate commerce act. *San Pedro, Los Angeles & Salt Lake*, 75 I. C. C. 463; *New York, Philadelphia & Norfolk*, 97 I. C. C. 287. The commission also must observe the repeated declarations of the Supreme Court that the value to be ascertained is that as of the time of the inquiry, which means in this case for each of the recapture periods under consideration.

Considering separately property other than land, the evidence which has been most carefully and thoroughly prepared, and in which full confidence may be placed is that embodied in the underlying accounting and engineering reports, as of June 30, 1919. For the purposes of this proceeding the carrier's witnesses have accepted much of that information as a basis for their contentions as to values in the later periods.

At the time of the hearing the tentative valuation report had not been issued, and the carrier had consequently been given no opportunity to present a formal protest. In view, however, of the completeness and satisfactory character of all of the evidence in this record regarding the value of the property devoted by the O'Fallon to common carrier service on June 30, 1919, it is practicable to determine the value for rate-making purposes as of that date.

In the absence of records which would show original cost, and because of the arbitrary manner in which the original entry in the investment record was made, the cost of reproduction new and cost of reproduction less depreciation estimates contained in the underlying engineering report must of necessity in this instance be accorded much weight, though such studies cannot be accepted as determining value. The explanation hereinbefore given of these estimates makes it evident that the reproduction costs reported more nearly represent the probable original cost or money outlay for the property, exclusive of lands, which the carrier was devoting to the service of the public on June 30, 1919, than its cost of reproduction at that particular time. The line of railroad, approximately 9 miles in length, was constructed in the years from 1896 to 1900. While a satisfactory statement of the carrier's actual investment, or of the original cost of its property, is not available, much thought and effort have been devoted to determining the costs of building railroads during the years immediately following the period when this carrier's property was being built. The results of that study are reflected in the unit prices, which are herein termed normal 1914 prices, used in making the reproduction cost estimates of this property.

Value as of 1919 Placed at $850,500 as the "Probable Necessary Reasonable Investment"

With this basis it may be determined that the money outlay for the property which the O'Fallon was using in performing common carrier service on June 30, 1919, exclusive of lands, was approximately $966,727. This figure is the result of adding to $927,884, the estimated cost of reproduction new, as shown in the engineering report, the amount of $38,843, which is the amount by which actual costs exceeded the estimated reproduction costs new for the units of property put into service between June 30, 1914, and June 30, 1919. Deducting from this figure $249,378, which is the difference between the cost of reproduction new and the cost of reproduction less depreciation as stated in the engineering report, the remainder is $717,349. It does not follow, however, that this amount is the approximate investment remaining in the property, excluding lands, devoted to common carrier service on June 30, 1919. All of the assumptions made in estimating cost of reproduction less depreciation as distinguished from cost of reproduction new, do not apply in the measurement of the investment remaining in a property that has been some time in service, as compared with the original cost. The test depends upon accounting rather than engineering methods, and all of the necessary accounting data are not available in this instance. The age of the property and the engineers' appraisal are clear indications of a lessening in the service life of the property and of some consequent impairment of the original investment in the property. On the other hand, there are factors not always easily defined or measured which to a greater or less extent affect investment values independently of changes in the physical condition of the property in which the investment is made. In the circumstances the final determination of value must rest upon judgment. Careful consideration of the fact that costs of various kinds, the aggregate of which cannot be definitely stated, have been incurred inevitably in putting and keeping the property in operation in a public service, and which may not be fully reflected in reproduction cost estimates, as well as of the other matters mentioned above, leads to the conclusion that the value for rate-making purposes of the property of the O'Fallon, devoted to common carrier service on June 30, 1919, exclusive of lands and working capital, was $750,000. This amount was the probable, necessary, reasonable investment remaining in such property as of that date. The value of the carrier lands was admittedly approximately $50,500, and the necessary investment in a fund for working capital, consisting wholly of materials and supplies, was, as previously stated, $50,000. The commission should find that the value for rate-making purposes of the entire common carrier property on June 30, 1919, was $850,500.

"The Present Inflation in Prices"

The circumstance which presents the greatest difficulty in determining what, if any, relation there may be between the value of this property in 1919 and in the years 1920, 1921, 1922, and 1923, is what is referred to in the foregoing quotation from the *Texas Midland* case as "the present inflation in prices." Without subscribing to the accuracy of the figures or estimates submitted by any of the witnesses, it may be stated in a general way that the costs of labor and of many materials were much higher during the 1920 to 1924 period than during the 1910 to 1914 period.

Cost of Reproduction Not Controlling

It is urged on behalf of the O'Fallon, in effect, that the value of its property in 1914 was not less than the cost of reproducing it at prices then prevailing, and that its value in 1920 was at least its cost of reproduction at prices prevailing at that time. The commission has never indicated that the cost of reproduction new is regarded by it as the controlling consideration in fixing a value for rate-making purposes. It is one of the elements which the commission is required by section 19a of the act to set forth in its valuation reports. Even if the cost of reproduction new in 1920 were to be regarded as a controlling element, there is not in the present record evidence showing what it might have cost to reproduce the property of the O'Fallon at that time. The only evidence in this respect is that of the relation of general prices in 1914 and in 1920 and the other recapture years. Costs of railroad building, owing to improvements in methods and economies thereby affected, did not vary greatly during the period of 20 years preceding 1914, although the prices of labor and material fluctuated. Without doubt the costs of railroad building were greater in the period 1920 to 1924 than in the period 1910 to 1914. There is no testimony here as to how much it cost to build any railroad or any substantial part of one in any of the recapture periods, and for that reason it is impossible to make a comparison of such costs in the two periods. It is not safe to assume, as the carrier has assumed,

that costs of building railroads have varied in recent years in direct ratio to the variation in costs of commodities in general use, or in the costs of materials of labor generally.

Even if there were in the present record a careful estimate of the cost of reproduction of the entire property of the O'Fallon in 1920 and the other recapture years, based upon known costs of constructing railroads at that time, such estimates could not be regarded as controlling in the determination of values for rate-making purposes. Compared with the actual or a reasonable and necessary investment in the property, such an estimate, if taken as the measure of value, would produce a result that common sense and good conscience could not approve.

There is the additional objection to the adoption of reproduction costs as the sole basis of rate-making value, that such costs tend to vary with abnormal increases or decreases in prices. The rate base determined by reproduction costs would vary, whereas stability of that base is essential. In times of abnormally high prices the value would be so great that the rate level necessary to produce a return upon it would be prohibitive. In times of abnormally low prices the value would, in a consistent adherence to the method, shrink to the extent that actual investments made in good faith would be imperiled if not entirely destroyed. At most, a reproduction cost statement is the estimate of an expert regarding a single statutory element of value.

Elements of Value

Value rests upon a number of elements. The value of the property of railroads for rate-making purposes, which is construed to be the value of property devoted to common-carrier purposes upon which common carriers are entitled under the law to earn a fair return, approaches more nearly the reasonable and necessary investment in the property than the cost of reproducing it at a particular time. In those cases, of which there are many and of which the present case is an example. Where it is impossible to ascertain and analyze the actual investment, resort must be had to the application, to complete property inventories, of unit prices regarded as normal in the sense that they are derived from actual costs paid by carriers over a considerable period of years when railroad construction was being carried on extensively.

The purpose is to insure reasonably adequate railroad service. Adequate service requires an adequate transportation machine. Such a machine can not be provided and maintained unless these is a continuous flow of capital into the transportation system. This flow of capital can be assured by fair treatment to the capital already invested and to the additional capital required to keep the transportation machine abreast of the times. The rule of a fair return on the fair value of the property is intended to accomplish this result. The method of valuation for rate-making purposes which we have adopted in these cases insures fair treatment to the investor because a fair return will be secured for every dollar that has flown into the project, provided of course that traffic is available. Whatever the price level may be, however severe the fluctuations, the method here employed will result in yielding a fair return on every dollar invested in the property. This is the greatest assurance which can be held out to prospective investors. No stronger inducements can be offered in fairness to all the interested parties.

Inasmuch as the value of this property, exclusive of land or working capital, on June 30, 1919, heretofore stated in the amount of $750,000, represents approximately the reasonable and necessary remaining investment of the carrier in such property in the condition in which it was at that time, the logical method for determining the value in the subsequent recapture periods is to add to or subtract from the 1919 value the net increases or decreases in the investment in property devoted to transportation service as determined from the carrier's returns to valuation order No. 3. The effect of this method is to add to the 1919 value the actual cost incurred by the carrier for property placed in service after June 30, 1919, and to deduct therefrom the cost at the time or purchase of any property withdrawn and retired from service. This is substantially the method applied by former Justice Charles E. Hughes, acting as referee for the New York Supreme Court, in the case of *Brooklyn Borough Gas Co.* v. *Public Service Commission*, P.U.R. 1918F, 335.

Applying the method just outlined, the value for the purposes of this proceeding of the property which the O'Fallon was devoting to the service of the public during the 10 months ended December 31, 1920, was $856,065. This amount is composed of the sum of $750,000, the value of property other than land on June 30, 1919, to which is added $50,500, approximately the value of the common-carrier land as stated in the underlying land report and agreed to by the carrier, and the amount of $50,000 to cover the amount of the carrier's necessary investment in a stock of materials and supplies needed as working capital in carrying on its common carrier operations during that period, besides the sum of $4,133, which has been found to be the net cost of additions and betterments less retirements during the period from July 1, 1919, to February 29, 1920, and the amount of $1,432 heretofore shown to be the average net cost of property added during the 10 months, March to December, inclusive, 1920.

This method produces for the year 1921, for the purpose of this proceeding, $875,360. This amount is composed of $856,065, the value for the 10 months ended December 31, 1920, plus $9,327, which is the difference between the average net cost of property added during these 10 months and the total amount thereof which remained as an investment in the property on December 31, 1920, and plus the amount of $9,968 heretofore shown to be the average net cost of property added during the year 1921. By the same method, the value of the property, for purposes of this proceeding, for the year 1922, was $978,864, and for the year 1923, was $978,236.

The values stated are the values of the railway property held for and used in the service of transportation by the O'Fallon during the periods designated, and they constitute the bases upon which the net railway operating income in excess of 6 per centum for each of such periods is to be computed. In determining these amounts the property valued is regarded as an instrument of transportation, employed in performing common carrier service.

It was stipulated that the net railway operating income might be entered in the record when determined and agreed upon by the commission's bureau of accounts and the carrier. Such agreement has been reached and the following amounts entered in the record with the carrier's approval, stated to be the amounts of net railway operating income of the carrier: for the period March to December, inclusive, 1920, $147,520; for the year ended December 31, 1921, $182,727; for the year ended December 31, 1922, $165,123; for the year ended December 31, 1923, $147,654.

The order issued by the commission on January 16, 1922, giving instructions for the computation of excess income for the portion of the year ended December 31, 1920, provided that such income should be primarily fixed as the income in excess of such proportion of 6 per cent on the value of the railway property held for and used in the service of transportation as the net railway operating income for the corresponding months of the test period bore to the total net railway operating income for that period. The carrier accepted this rule as a proper one in its case, and submitted computations showing that the rate to be applied would be 4.7103 per cent. The bureau's computation, which was based upon revised figures of income, indicates a rate of 4.76178 per cent. In computing the excess income for the recapture period of 1920, the latter rate should be used.

The commission should find that the valuations of the property of the O'Fallon, and the net railway operating income of said carrier, for the period March to December, inclusive, 1920, and for the years 1921, 1922, and 1923, determined for the purposes of the recapture provision of section 15 (a) of the interstate commerce act are as stated herein.

The record regarding the value of the property of the Manufacturers' Railway is of the same character as that regarding the value of the property of the O'Fallon. The investigation for the purpose of ascertaining the value of this property is in progress but has not yet been concluded, pursuant to section 19a. As in the case of the O'Fallon, all property of the Manufacturers' owned or used by it for its purpose as a common carrier has been inventoried, its condition determined, and an examination of its records and accounts has been made with the view to ascertaining the value of such property primarily as of June 30, 1917. At the time of the hearing the underlying reports in the valuation investigation had been prepared and these were made a part of the record. No tentative valuation had been issued and consequently the carrier had been given no opportunity to file a formal protest. The three underlying reports had been served previously upon the carrier and it had been afforded an opportunity to take informal exceptions thereto. As in the case of the O'Fallon, much of the testimony and a number of the exhibits presented both by the carrier and the bureau, in so far as these relate to value of this carrier's property, make reference to, and to a considerable extent are based upon, these underlying reports.

Not Necessary to Find Value

It is evident from examination of the evidence that it is not necessary, for the purposes of this proceeding, for the commission to reach a conclusion as to the value of this property for any of the recapture periods. The net railway operating income of the Manufacturers', as determined by the commission's bureau of accounts and the carrier's accountants, for each of the recapture periods was as follows:

For the period March to December, inclusive, 1920	$64,527
For the year ended December 31, 1921	52,082
For the year ended December 31, 1922	95,258
For the year ended December 31, 1923	84,371

This investigation indicates conclusively that no excess income is recoverable from the Manufacturers' for any of the recapture periods under consideration, and the commission should so find.

St. Paul Hearings

Percy Rockefeller, Samuel Pryor, J. D. Ryan and others testify at New York sessions

HEARINGS in the Interstate Commerce Commission investigation of the affairs of the Chicago, Milwaukee & St. Paul continued during the past week before Commissioner Cox in the offices of the Port of New York Authority, 11 Broadway, New York.

On April 8 and 9 Percy A. Rockefeller testified, answering questions by Walter L. Fisher, former Secretary of the Interior and now retained as special examiner for the commission, Daniel H. Grady, assistant attorney-general of Wisconsin, who, with Attorney-General Herman L. Eckern, represents the Wisconsin stockholders. A considerable share of the testimony on the first day dealt with Mr. Rockeller's part in the acquisition by the St. Paul of the Chicago, Milwaukee & Gary. Mr. Rockefeller declined to admit that he had been an intermediary in connection with the purchase of that property. He said at first that he had not benefited in any way as a result of the St. Paul's purchase of the terminal property, admitted that he had favored the acquisition under certain conditions which included the right price and the granting of certain rights to the railroad near Joliet, Ill.

It was brought out that with Samuel Pryor and another, Mr. Rockefeller had been interested in the Owenoke Corporation. Mr. Pryor with Benjamin L. Winchell, a St. Louis banker, received a 10 per cent commission of $300 000 for the sale of the Gary property to the St. Paul. Mr. Pryor had deposited his half share, or $150,000 in the form of bonds of Chicago, Milwaukee & Gary in the Owenoke Corporation treasury so that the benefits accrued indirectly and in part to Mr. Rockefeller because of his third interest in the corporation. Mr. Rockefeller testified he did not know that Mr. Pryor was to get a commission and he added that Mr. Pryor had told him that former associates of his in St. Louis were interested in selling the line. "I told him President Byram was the man to see. I never told Mr. Byram to look into it. I never told him to buy it." Mr. Rockefeller was asked what was the real cause of the St. Paul receivership and in answer said: "I cannot ascribe the non-success of the road to any one factor. The property did relatively well until 1916.

Then there was the war, the uncertain industrial conditions afterward, the boom in California which diverted a large part of our population to the Pacific Coast, the discovery of oil in the Southwest, competition with the Panama Canal, the growth of the United States mercantile marine, the increased cost of doing business, the increase in taxes, increased labor cost and Federal control during the war."

Mr. Rockefeller also testified that his father, William Rockefeller, held a very large interest in the St. Paul but that his own interest at the present time only amounts to about 1,600 shares. In the continuation of Mr. Rockefeller's testimony on April 9, attempt was made by Mr. Fisher to establish that during the time that Mr. Rockefeller was a director and even thereafter, the Rockefeller interests had dominated the activity of the property. Mr. Rockefeller in this connection expressed his opinion of the St. Paul directors as follows: "They always used their best judgment. I know of no corporation in which I have ever been a director in which the board discussions were more frank and free. If their judgment had not been as good as it was, conditions would have been worse. They always acted for the benefit of their stockholders."

Mr. Rockefeller later said that after his resignation from the St. Paul directorate he had been named a director of the Chicago, Milwaukee & Gary and explained that he did not try to evade the Clayton Act but rather complied with it. Questioned concerning President Byram's salary of $50,000 originally and later raised to $75,000, Mr. Rockefeller explained that employers have to maintain the going rate and that it was not reasonable to blame all of the financial troubles of the St. Paul on Mr. Byram. Mr. Rockefeller expressed the view also that during the war the railroad administration had been partial to other railroads than the St. Paul and in conclusion he again denied that he had co-operated with Mr. Pryor with reference to the purchase of the Gary property although he did admit that he profited "unwittingly."

John McHugh

In the continuation of the hearing on April 9, the witness was John McHugh, president of the Mechanics & Metals National Bank of New York, who said that he became a director of the St. Paul in 1923 at the personal request of President Byram and denied that he was put on the board to represent the Rockefeller interests. An interesting feature of Mr. McHugh's testimony was his statement that while he was a director he at times owned no stock as required by law to qualify as a director. Counsel for the St. Paul showed that Mr. McHugh's testimony was incorrect because the records showed that Mr. McHugh had owned the qualifying shares. A portion of the questioning of Mr. McHugh was apparently directed but without particular success to show that the directors had left the actual financial arrangements in connection with the 1925 maturities to the bankers.

The Gary Purchase

Samuel F. Pryor, partner of Percy A. Rockefeller in the Owenoke Corporation mentioned above, testified on Monday morning concerning his commission of $150,000 for the sale of the Chicago, Milwaukee & Gary. He read from a prepared statement and amplified in further detail the evidence that had been brought out in the cross-examination of Mr. Rockefeller earlier in the hearings. One interesting point was the fact that he had tried to arrange a sale of the Chicago, Milwaukee & Gary to the New York Central but that he discovered that the idea had already been presented to President A. H. Smith by Benjamin L. Winchell, at that time vice-president of the Pierce Oil Corporation. Mr. Pryor explained that he then got in touch with Mr. Winchell and arranged to pool their interests. The Gary was first offered to the Chicago, Milwaukee & St. Paul at $5,700,000 and was finally taken over by the Milwaukee at a price of $3,000,000. Mr. Pryor received half of the commission and deposited this half, totaling $150,000, with the Owenoke Corporation. Mr. Pryor is chairman of the finance committee of the Remington Arms Company.

J. D. Ryan Testifies

The most interesting part of this week's testimony was that of John D. Ryan, copper magnate, who testified on

April 12. Mr. Ryan was a director of the St. Paul from 1909 to 1921, when he resigned his membership in conformance with the Clayton Act. He was also chairman of the Anaconda Copper Company which sold the St. Paul much of the copper used in its electrification and he was also interested in the Montana Power Company which supplies power for the electrified division of the St. Paul. The questioning was directed to show whether Mr. Ryan had been influenced in his attitude toward the electrification of the railroad by his other affiliations. Mr. Ryan explained in great detail the purpose of the St. Paul in deciding to electrify its line. He said that his primary interest was in water power and electrical development in Montana and then added that for the reason that he was interested in power he had carefully avoided taking any active part in the negotiations for electrification. Emphasizing this point he said, "Although I was selling power I would have resigned from the St. Paul before I would have voted for electrification, had I thought it would not be for the best interest of the road." Mr Ryan expressed his belief that because of his knowledge of conditions in Montana, it was to the advantage of the St. Paul to have him serve as a director. Considerable attention was paid to the St. Paul power contracts. Mr. Ryan explained that the St. Paul received its power at a very low rate and said furthermore that the power contract had been modified on one occasion to benefit the railroad.

Edward S. Harkness was the largest holder of St. Paul securities at the time the directors decided to apply for receivership. It was pointed out that at that time he owned 103,000 shares and has since sold 42,000. The interesting feature of Mr. Harkness's testimony on April 13 was his statement that the St. Paul had, in 1923 and 1924 initiated negotiations with various railroads looking to a consolidation of their interests. The roads approached included the Union Pacific, the Illinois Central, the Nickel Plate and the Kansas City Southern but he said in each case the negotiations had come to naught because the other carriers did not believe that the St. Paul had anything worthwhile to contribute. The effort was made by the attorneys to emphasize the fact that Mr. Harkness was associated with the Rockefeller interests and considerable time was taken up in trying to ascertain his familiarity with the operations of the railroad. The effort was made, for instance, to show that although Mr. Harkness was an active member of the St. Paul board of directors from 1916 until its receivership and a member of its executive committee, the plans for the road's reorganization had been worked out without his knowledge. He said that the receivership had been decided upon at a meeting of the board on March 17, 1925, and that the outlook had become apparently hopeless for a month or a month and a half before that. He admitted that he had not been aware that the bill of complaint which precipitated the receivership had been in the hands of the authorities as early as January 29, 1925. The St. Paul receivers were appointed on March 18, 1925.

J. D. Ryan was again on the stand on Wednesday and supplemented his earlier testimony. On Wednesday the hearing was adjourned to be resumed the following Wednesday.

SAFETY ON THE ST. PAUL.—The safety bureau of the Chicago, Milwaukee & St. Paul reports that the number of employees fatally injured in 1925 was only one-third that of 1913, the year that the bureau was established, and injuries were reduced in the same proportion. During the past year 480 safety meetings were held, on the several divisions, with an attendance of over 7,000. Suggestions from employees for correcting conditions or practices totaled 9,580.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended April 3 amounted to 928,092 cars, an increase of 4,692 cars as compared with the corresponding week of last year and of 66,102 cars as compared with 1924, although it was a decrease as compared with the preceding week. Decreases as compared with last year were reported from the Southern, Northwestern and Southwestern districts and in livestock, forest products, ore and miscellaneous freight. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

REVENUE FREIGHT CAR LOADING.

Week ended Saturday, April 3, 1926.

Districts:	1926	1925	1924
Eastern	228,701	223,994	211,779
Allegheny	192,623	191,947	178,355
Pocahontas	46,305	42,166	34,132
Southern	155,483	157,569	138,414
Northwestern	110,206	114,333	109,919
Central Western	125,402	120,983	128,747
Southwestern	69,372	72,408	60,644
Total Western Districts	304,980	307,724	299,310
Total all roads	928,092	923,400	861,990
Commodities:			
Grain and grain products	37,673	34,367	35,096
Live stock	21,391	23,835	28,590
Coal	156,909	132,999	123,203
Coke	13,026	12,058	12,300
Forest products	73,162	79,586	77,491
Ore	12,436	13,104	11,837
Mdse. L. C. L.	262,706	262,560	251,612
Miscellaneous	350,789	364,891	321,861
April 3	928,092	923,400	861,990
March 27	967,838	932,769	907,389
March 20	977,209	911,481	908,390
March 13	967,411	926,119	916,762
March 6	964,681	932,044	929,381
Cumulative total, 14 weeks	12,913,690	12,705,809	12,450,001

The freight car surplus for the week ended March 31 averaged 246,549 cars, including 104,280 coal cars and 95,478 box cars. The Canadian roads for the same week had a surplus of 23,205 cars, including 18,850 box cars and 200 coal cars.

Car Loading in Canada

Revenue car loadings at stations in Canada in the week ended April 3 were 50,228 cars, a decrease of 1,214 cars from the same week last year, owing to the Easter holiday, but they were 4,965 cars over the Easter week loading last year.

	Total for Canada			Cumulative totals to date	
	April 3	Mar. 27	April 4		
Commodities:	1926	1926	1925	1926	1925
Grain and grain products	4,683	5,747	6,317	89,455	86,392
Live stock	2,089	2,306	2,494	26,824	29,689
Coal	3,033	3,044	2,530	59,844	63,629
Coke	336	358	269	6,269	4,137
Lumber	3,373	3,922	3,530	42,031	39,052
Pulpwood	3,051	3,885	2,890	50,792	52,624
Pulp and paper	2,437	2,541	1,987	34,417	28,161
Other forest products	3,196	3,835	2,525	46,812	43,462
Ore	1,395	1,384	1,284	18,492	15,364
Merchandise, L. C. L.	14,878	16,658	16,312	193,221	185,922
Miscellaneous	11,757	12,948	11,304	144,849	133,000
Total cars loaded	50,228	56,628	51,442	713,006	681,432
Total cars received from connections	38,249	42,253	33,705	482,620	443,188

A TOTAL of 2,136 patients were cared for at the Missouri Pacific hospital at Little Rock, Ark., during 1925, an increase of 752 over 1924. A total of 19,270 employees of the road called at the hospital for treatment. There was a decrease of 4 days per patient in the average time patients were held at the hospital during 1925 as compared with the previous year. The number of employees at the hospital, including doctors, increased from 20 in 1923 and 1924 to 84 in 1925, due to the opening and operation of the district hospital. The actual expense of operating the hospital was $114,987. The expense per patient cared for at the hospital was $5.05 per day, while the cost of treating patients not confined in the hospital was 89½ cents per patient.

C. & O. Holds Second Annual Younger Men's Conference

IT was only two and a half years ago that the first International Younger Railroad Men's Conference was held at St. Louis, Mo. Readers of the *Railway Age* are familiar with this significant development through articles which have been published covering the St. Louis conference (October 25, 1924, page 739), the Detroit conference (November 22, 1924, page 940), and the Pittsburgh conference (November 28, 1925, page 992). Thus far the Chesapeake & Ohio has been the only road to hold a system conference, the first one of these being held at Huntington, W. Va., April 3 to 5, 1925 (*Railway Age*, April 11, 1925, page 937).

Since the first conference E. W. Grice, assistant to the president, has followed the progress of the boys who attended the meeting last year, through periodic reports from the officers and supervisors. This, added to the experience of the officers who helped with the first conference, has stimulated a larger interest on the part of these officers and supervisors in all of the boys under their charge. Moreover, the boys themselves have done much to extend the influence of the movement to their companions through the formation of American Railroad Employed Boys' Clubs or similar organizations, or through contacts in other ways, both inside and outside of the office and shop.

The second annual conference, which was held at Huntington, W. Va., April 9, 10 and 11, was conducted in general along the same lines as the former conferences, except that several detail improvements were made on the basis of previous experiences. One hundred and twenty-five boys, between the ages of 16 and 20, and representing all departments, attended the conference, which was held under the auspices of the Railroad Y. M. C. A. G. W. Campbell of the Y. M. C. A. College at Chicago, led the song services—a rather important factor in promoting fellowship.

The conference opened on Friday afternoon, April 9, with an address by G. K. Roper, senior secretary, Transportation Department, National Council of the Y. M. C. A., on "What Are the Values in a Younger Men's Conference?" The convention proceeded to elect officers, nominations being made from the floor, after which the candidates were asked to speak briefly as to what they believed could be accomplished by the conference. As a result, M. G. S. Stewart, a machinist apprentice at Russell, Ky., was elected president, J. K. Morrisey, a clerk in the general claim agent's office at Richmond, first vice-president, and R. R. Scrugg, pipefitter apprentice at Clifton Forge, Va., second vice-president. Under the leadership of E. W. Brandenburg, national secretary, Boys' Department, Y. M. C. A., an open forum was conducted for the presentation of topics to be discussed by small groups during the second and third days of the conference.

President Harahan, with a number of general officers, attended the opening session, Mr. Harahan giving expression to his hearty appreciation of the value and importance of the conference.

A conference banquet was held on Friday evening, J. B. Parrish, general manager, acting as toastmaster. Music was furnished by the C. & O. Huntington shop band. Addresses of welcome were made by the mayor of Huntington and the president of the Chamber of Commerce, after which M. G. Stewart, machinist apprentice at Russell, summed up the spirit of the first annual younger men's conference on the C. & O., and Strother Keiser, weighmaster at Russell, Ky., spoke on "What Was Best in the Pittsburgh Younger Men's Conference." Roy V. Wright, managing editor of the *Railway Age*, outlined three important forward steps which had been taken by the Railroad Y. M. C. A. in recent years, including the boys conferences, the better relations program, and the health and recreation movement. Brief talks were made by Vice-presidents G. B. Wall and F. M. Whitaker; J. W. Small, chief mechanical officer and L. B. Allen, superintendent maintenance of way.

President W. J. Harahan had expected to speak at the dinner, but bronchial trouble prevented him from being present. His address was read by E. I. Ford, assistant to the general superintendent at Huntington.

On Saturday morning the major part of the time was given to discussional group meetings, with special relation to home, community and vocational problems, with an address by E. W. Brandenburg on "Finding Our Place in the World's Work." Vocational blanks, similar to those used at the other younger men's conferences were filled in and were sorted during the afternoon, so that each group of young men interested in a particular vocation could during the evening advise with an officer of the department in which the young man was interested as to his future and the best way to prepare for it.

At a fellowship luncheon held during the noon hour, addresses were made by T. F. Barton, general master mechanic of the C. & O., and M. A. Kinney, superintendent motive power of the Hocking Valley. Saturday afternoon was given over to a recreation program and a sight-seeing automobile trip. At dinner that evening each group of boys sat at a table with their advisers, including railroad officers assisted by Y. M. C. A. secretaries. After an address by Roy V. Wright on "Opportunities in the Transportation Industry," the groups separated, going to different rooms, and the remainder of the evening was spent in advising with the young men as to their preparation for the future.

On Sunday morning the discussional groups considered the importance and value of religion in a young man's life. The conference closed with an address on "The Next Step" by Ward W. Adair, general secretary, Park Avenue Railroad Y. M. C. A., New York.

International

Derailment Near San Juan, Costa Rica, on March 14, in Which 250 Lives Were Lost

Progress in Solving the Railroad Problem*

By Samuel O. Dunn
Editor of the *Railway Age*

THAT real progress toward the solution of the nation's railroad problem is being made can be conclusively demonstrated by mention of a few outstanding developments which have occurred within the last two years.

Those who are interested in the solution of the railroad problem may be divided into, first, the public which receives transportation service, pays rates to the railways and collects taxes from them; secondly, the employees who receive wages from them; and, third, investors who own their securities.

Both the average freight rate and the average passenger rate declined during the last two years, with the result that the public paid the railways last year $75,000,000 less in freight charges and $30,000,000 less in passenger charges than it would have paid for the same amount of transportation at the average rates of 1923.

The public also collected $26,000,000 more in taxes from the railways than in 1923. Thus, through lower rates and higher taxes, the public benefited to the extent of $131,000,000. In addition it received a greatly improved service, the value of which was enormous.

The number of employees was reduced, but the average wage per hour of employees was increased. The result was that for the number of hours they worked last year the employees received $100,000,000 more in wages than they would have received if they had been paid the average hourly wage of 1923.

In spite of higher taxes, lower average rates and higher average wages, the net operating income of the railways, with which they may pay fixed charges and dividends, increased $153,000,000 in 1925 over 1923. The net return on their property investment in 1923 was 4.48 per cent and in 1925 it was 4.83 per cent. This was equivalent, in 1925, to an average of 5.63 per cent on the tentative valuation made by the Interstate Commerce Commission. Of course, as is well known, the railways in western territory earned less than these averages.

Thus it will be seen that, from the standpoint of the selfish interest of each of the three parties concerned, progress was made. This three-fold progress was rendered possible by great economies in operation, and these in turn were largely made possible by the investment of about three billion dollars of capital in the railroad industry within the last four years.

It is a question of the first importance whether this progress toward a solution of the railroad problem is to be continued or arrested.

What is the railroad problem? It is the problem of establishing and afterwards maintaining economic justice between the public, the employees and the investors. It is the problem of establishing equitable relations between the rates charged and the service rendered to the public, the wages paid to the employees and the return paid to investors for use of their capital. You cannot give to one of these parties more than it is entitled to without giving to one or both of the other parties less than they are entitled to, and thus failing to solve the problem.

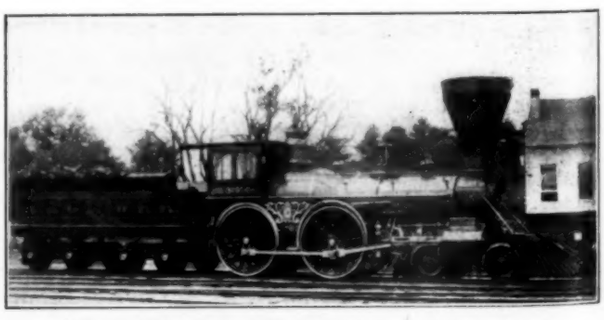
A movement has been started for large advances in the wages of railway employees. Everybody wants to see railway employees well paid. But every fair and right minded person also wants to see patrons of the railways get reasonable rates and the investors in their securities get reasonable returns on their investment. Such advances in wages as are being asked could not be paid merely by reducing the net return earned for investors. A twenty per cent advance in wages would wipe out one-half of all the net return being earned, although it never yet has been as much as the Interstate Commerce Commission has held reasonable and necessary in the public interest. The question raised by this wage movement, therefore, actually is whether a large general advance in rates should be made to pay a large general advance in wages.

Continued progress toward the solution of the railroad problem imperatively requires two things. First, all the parties interested must give more consideration to the interest and rights of the other parties than they have in the past. We have had the railroad problem so long mainly because some of the parties interested in it have selfishly tried by "economic pressure," political influence and misrepresentation to get what they have wanted regardless of the interests and rights of others. At the present time certain labor leaders are grossly exaggerating the net return of the railways in efforts to further the wage movement.

Secondly, regulation of railways must be made and kept a purely economic policy aimed only at doing justice between the parties. While the necessity of this should be plain, measures prompted by political motives constantly are being introduced in Congress to bring about unfair regulation in the supposed interest of particular classes or sections. Among such recent measures have been the Hoch-Smith resolution, a bill to abolish the Pullman surcharge, the Gooding bill and a bill now pending for regional representation upon the Interstate Commerce Commission. A commission composed of regional representatives would soon become a body of log rollers each of whom, for political purposes, would try to get rate decisions favorable to his section regardless of the national welfare.

Progress is being made toward the solution of the ralroad problem because regulation has been becoming more reasonable and constructive, and this has given opportunity and stimulus for improvements in the physical properties of the railways and in their management. Under a public policy aimed solely at doing economic justice between all parties concerned, railway operation will continue constantly to increase in efficiency and economy and all parties will benefit. Whenever the nation allows reversion to a policy dictated by the selfish pressure of classes or sections through use of their real or supposed economic or political power, the progress now being made toward a solution of the railroad problem will stop.

* From an address delivered on April 8 at a luncheon of the Rochester Chamber of Commerce and the Atlantic States Shippers Advisory Board at Rochester, N. Y.



On the Atlantic & Great Western (Erie) in 1862

General News Department

The New England Railroad Club will hold its annual banquet and entertainment on May 11 at the Copley-Plaza Hotel, Boston.

The Central Railway Club will have its "ladies' night" on May 13. There will be a special program of entertainment and a bal masque.

The Railway Club of Pittsburgh will hold its next meeting on April 22. Robert S. Binkerd, vice-chairman of the Eastern Railroads' Committee on Public Relations, will address the meeting on "A Square Deal on Valuation and Earnings."

The Cleveland Steam Railway Club will meet on May 3 to hear a paper on Equipping All Cars and Locomotives with United States Safety Appliances, which will be presented by Henry Benz, assistant general foreman of the New York Central, at Youngstown, Ohio.

The Terminal Railroad Association of St. Louis exhibited at the St. Louis Union Station on April 12, a new locomotive built at its own shops for handling transfer traffic between the carriers connecting with the terminal. This engine in working order weighs 422,500 lb., and has a tractive force of 60,335 lb. It is one of twenty of its type added to the terminal equipment.

Inspection of Air Brake Tests

Air brake tests being conducted in the mechanical engineering building at Purdue University were inspected by the committee on safety appliances of the Mechanical Division of the American Railway Association, during the week of April 5. The committee made a complete inspection of the laboratory equipment and reviewed the experimental data which has been compiled to date.

Safety Campaign in Toledo

A four months' safety campaign, consisting of a series of six rallies recently held in Toledo, Ohio, was participated in by all of the railroads centering in that city, fourteen of them. These rallies were conducted by the Railway Safety Committee of the Toledo Safety Council, G. E. Husted, chairman. The railroads bore the cost of the rallies in proportion to attendance of their employees, the apportionment being made in advance by the distribution of attendance tickets, 1000 for each meeting. Well-known speakers were brought in from various cities, and each rally was followed by an entertainment and a dance. Prizes were given for attendance.

Safety Section Meeting at St. Louis, April 27

The safety section of the American Railway Association, Robert Scott, chairman, will hold its sixth annual meeting at Hotel Statler, St. Louis, Mo., on Tuesday, Wednesday and Thursday, April 27, 28 and 29.

Increased Effort Needed in Accident Prevention

T. H. Carrow, chairman of the committee on statistics of the safety section, A. R. A., calling attention to the Interstate Commerce Commission's report of railroad accidents for the last calendar year (noticed in another column), reminds operating officers and safety committees that with a comparatively stable working force throughout 1925 there was an increase of three per cent in the number of employees on duty killed and a reduction of only 4.8 per cent in the number injured. For the month of December alone the increase in the number killed was 22.5 per cent. It is hoped, says the circular, that this record will suggest increased safety activities wherever they may be necessary.

Valuation Arguments

Oral arguments will be heard by Division 1 of the Interstate Commerce Commission on May 17 on the commission's tentative valuation of the properties of the New York, New Haven & Hartford. Oral arguments will also be heard by the entire commission on May 13, 14 and 15 on the tentative valuation reports on the properties of the Atchison, Topeka & Santa Fe and subsidiaries.

Claims Settled Promptly

Eighty-nine per cent of all claims against the railroads growing out of loss or damage to freight during 1925 were settled within 90 days after their presentation, according to reports compiled by the Freight Claim Division, A. R. A. In 1924, the number of claims settled within 90 days represented 86.5 per cent. Of the total number of claims filed in 1925, 70 per cent were adjusted within 30 days, as compared with 68 per cent in 1924. The railroads in 1925 received approximately 2,503,000 claims for loss and damage. At the close of 1925, only 204,962 claims remained unadjusted, compared with 228,659 at the end of 1924.

Mechanical Division Scholarships at Stevens

The Mechanical Division of the American Railway Association has four scholarships at Stevens Institute of Technology, Hoboken, N. J., three of which will be vacant in June. These scholarships are available for the sons of members of the division and cover the regular tuition charges for a four-year course, leading to the degree of Mechanical Engineer (M. E.). The course offered also includes instruction in electrical, civil and other branches of engineering. Applications for these scholarships should be in the hands of the secretary of the division not later than May 1, 1926. In case there are more than three applicants, scholarships will be given to the three passing the entrance examination with the highest standing.

Wage Statistics for January

Class I railroads reported to the Interstate Commerce Commission a total of 1,730,071 employees as of the middle of the month of January, 1926, a decrease of 23,137, or 1.3 per cent, as compared with returns for the preceding month. The total compensation, $239,788,434, shows a decrease of $5,000,508, or 2.0 per cent, compared with the returns for the corresponding month last year, the number of employees reported shows an increase of 0.1 per cent. But owing to the fact that four Sundays occurred in January, 1925, and five in January, 1926, the average number of straight-time hours worked per employee decreased from 203 to 197. This decrease, while offset to some extent by an increase of 6 mills in the average straight-time hourly earnings, resulted in a decrease of 1.5 per cent in total compensation.

Illinois Manufacturers' Association Takes Exception to Proposed Increase in Revenues

The Illinois Manufacturers' Association has filed a brief with the Interstate Commerce Commission in which the association takes exception to the proposed increase in revenues in the western district under Ex Parte 87. The association does not concur in nor oppose the application of the western carriers for increases in the present rates in the western territory, but is opposed to the proposal of the carriers to apply these increases to the rates within the territory known as the Illinois District, embracing all points in Illinois, points in Wisconsin on and south of the line of the Chicago, Milwaukee & St. Paul to Madison, Wis., the Chicago & North Western, Madison to Dodgeville, and on and east of the Illinois Central, Dodgeville to the Wisconsin state line, also points

(*Continued on page* 1090)

Freight Operating Statistics of Large Steam Roads—Selected Items for February, 1926,

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles: Principal and helper	Locomotive-miles: Light	Car-miles: Loaded (thousands)	Car-miles: Per cent loaded	Ton-miles (thousands): Gross, Excluding locomotive and tender	Ton-miles (thousands): Net, Revenue and non-revenue	Average number of locomotives on line daily: Serviceable	Unserviceable	Per cent unserviceable	Stored
New England Region.												
Boston & Albany	1926	404	230,013	252,174	30,398	4,354	72.7	214,883	84,481	117	12	9.3	1
	1925	404	255,817	271,708	26,488	4,729	69.7	243,969	96,821	129	16	10.7	3
Boston & Maine	1926	2,250	448,993	511,905	42,920	10,909	76.7	515,410	211,198	316	96	23.2	52
	1925	2,282	495,659	567,998	53,529	12,053	72.4	602,734	249,526	337	115	25.5	30
N. Y., New H. & Hartf.	1926	1,885	421,155	433,708	34,240	11,097	73.5	534,244	215,943	260	51	16.3	23
	1925	1,931	453,099	474,845	33,881	11,857	71.1	597,744	250,739	296	72	19.5	14
Great Lakes Region:													
Delaware & Hudson	1926	875	315,820	430,336	48,432	8,389	65.9	503,363	244,328	248	38	13.2	100
	1925	888	369,293	503,949	45,835	9,773	65.5	632,210	322,468	239	35	12.8	47
Del., Lack. & West	1926	993	455,645	534,194	61,737	13,882	71.1	717,703	291,454	280	62	18.1	67
	1925	993	541,027	657,736	95,947	16,525	70.3	933,410	429,332	295	63	17.6	7
Erie (inc. Chi. & Erie)	1926	2,323	904,563	990,298	102,683	30,118	63.7	1,822,785	793,541	595	103	14.8	152
	1925	2,325	875,709	978,489	97,475	31,165	67.4	1,857,567	863,149	646	100	13.3	135
Lehigh Valley	1926	1,345	489,469	538,395	75,492	14,453	68.1	796,770	340,298	409	90	18.1	96
	1925	1,357	547,839	605,760	66,451	16,127	65.9	958,890	441,606	456	63	12.1	95
Michigan Central	1926	1,835	549,705	566,348	17,575	18,688	64.9	983,205	349,488	274	59	17.7	84
	1925	1,826	536,993	548,653	18,916	17,251	65.2	947,759	345,130	301	66	18.0	73
New York Central	1926	6,478	2,127,018	2,438,129	184,845	72,274	62.3	4,425,818	1,936,500	1,119	328	22.7	115
	1925	6,478	2,065,043	2,364,968	178,672	70,431	61.7	4,312,045	1,876,516	1,214	346	22.2	185
New York, Chi. & St. L.	1926	1,665	608,928	618,373	5,057	18,476	67.0	1,001,256	399,717	245	67	21.6	50
	1925	1,669	643,211	651,974	7,093	18,976	65.7	1,055,746	435,350	257	61	19.1	47
Pere Marquette	1926	2,198	394,057	402,204	4,947	9,873	63.7	573,824	242,095	190	27	12.3	22
	1925	2,198	356,135	363,632	6,537	9,034	65.1	525,761	248,415	188	26	12.3	23
Pitts. & Lake Erie	1926	231	138,609	139,472	987	4,502	58.8	350,605	191,548	64	14	17.9	14
	1925	231	134,839	135,196	910	4,475	60.6	352,777	201,232	64	18	22.2	1
Wabash	1926	2,497	674,869	703,216	10,201	20,501	67.1	1,119,069	441,483	311	61	16.3	57
	1925	2,497	634,503	666,478	9,611	19,190	68.9	1,037,641	424,698	280	63	18.3	18
Central Eastern Region:													
Baltimore & Ohio	1926	5,197	1,884,390	2,248,832	193,263	52,900	62.7	3,468,767	1,682,378	983	227	18.8	25
	1925	5,196	1,720,004	2,012,614	166,423	48,556	64.3	3,039,067	1,459,507	928	324	25.9	57
Central of New Jersey	1926	691	254,572	283,204	38,826	6,199	62.3	411,273	194,734	244	26	9.6	47
	1925	692	271,184	300,850	38,991	6,492	58.2	439,098	210,518	233	38	14.1	22
Chicago & Eastern Ill	1926	945	255,447	256,441	3,890	6,863	62.6	419,983	195,729	116	39	25.3	23
	1925	945	228,335	233,198	3,732	5,984	62.7	369,071	176,777	115	41	26.5	27
Clev., Cin., Chi. & St. L.	1926	2,374	703,788	731,729	23,272	21,161	61.6	1,371,897	642,102	323	96	22.9	5
	1925	2,376	686,746	735,733	14,786	20,024	60.9	1,309,811	614,001	360	76	17.4	21
Elgin, Joliet & Eastern	1926	460	125,837	134,138	6,294	3,623	62.9	273,463	141,259	83	13	13.8	.....
	1925	460	132,169	144,844	7,722	3,899	63.5	298,409	150,298	81	12	12.8	...
Long Island	1926	393	38,872	44,220	11,371	460	58.3	29,821	11,898	40	9	18.4	1
	1925	393	41,548	45,484	11,025	545	59.0	33,667	13,291	40	14	25.6	...
Pennsylvania System	1926	10,879	4,872,458	5,394,394	476,908	130,970	64.3	8,649,123	4,149,254	2,710	565	17.3	64
	1925	10,930	4,331,048	4,701,270	362,819	117,025	63.7	7,760,926	3,704,339	2,570	863	25.1	33
Reading	1926	1,129	700,144	780,639	83,680	17,454	59.7	1,252,643	648,596	368	69	15.7	49
	1925	1,132	649,156	712,849	69,441	15,682	60.3	1,101,344	566,690	383	80	17.3	40
Pocahontas Region:													
Chesapeake & Ohio	1926	2,633	1,174,196	1,292,764	46,442	35,353	57.2	2,802,941	1,524,956	529	89	14.4	12
	1925	2,598	1,072,948	1,128,044	34,273	30,720	56.5	2,425,932	1,304,732	492	108	18.0	15
Norfolk & Western	1926	2,231	871,599	1,085,631	50,719	28,003	59.8	2,317,491	1,260,793	569	65	10.3	96
	1925	2,230	790,879	953,638	38,139	23,547	60.7	1,883,176	988,434	570	99	14.9	111
Southern Region:													
Atlantic Coast Line	1926	4,924	891,100	903,028	15,547	21,653	60.8	1,241,150	481,670	406	51	11.2	10
	1925	4,869	861,277	880,218	14,080	21,828	62.2	1,160,946	445,440	394	45	10.2	16
Central of Georgia	1926	1,907	334,187	337,119	6,048	7,504	71.6	413,749	189,718	155	25	13.7	20
	1925	1,907	301,012	304,054	5,521	6,712	72.9	351,269	153,718	152	11	6.7	26
Illinois Central (inc. Y. & M. V.)	1926	6,225	1,752,736	1,776,026	36,676	48,723	64.9	3,029,775	1,340,793	771	104	11.9	11
	1925	6,225	1,584,482	1,604,766	36,610	45,360	65.3	2,760,324	1,207,362	793	112	12.3	51
Louisville & Nashville	1926	5,021	1,771,879	1,902,924	67,493	34,647	61.8	2,323,648	1,144,088	603	112	15.7	...
	1925	5,027	1,673,523	1,814,407	65,611	31,725	61.5	2,104,139	1,017,890	603	97	13.9	4
Seaboard Air Line	1926	3,905	593,503	602,264	10,661	14,855	66.3	833,003	339,935	296	33	10.0	...
	1925	3,755	520,936	531,085	12,574	12,730	68.0	688,283	275,576	238	34	12.5	...
Southern System	1926	8,043	2,125,376	2,174,625	47,095	50,083	65.0	2,850,279	1,187,523	1,025	163	13.7	32
	1925	8,157	1,884,509	1,941,447	35,497	45,649	67.6	2,480,566	1,022,654	1,072	158	12.8	27
Northwestern Region:													
Chi. & North Western	1926	8,469	1,838,367	1,377,504	22,923	31,114	63.2	1,799,033	731,520	739	200	21.3	90
	1925	8,463	1,326,105	1,365,478	26,867	29,400	64.3	1,646,400	664,943	766	241	23.9	89
Chi., Milw. & St. P.	1926	11,202	1,415,396	1,522,077	86,248	40,294	65.7	2,285,616	994,881	894	204	18.6	188
	1925	11,201	1,448,332	1,529,168	73,058	38,584	65.1	2,199,906	968,264	956	163	14.5	91
Chi., St., Minneap. & Om.	1926	1,819	291,534	312,559	12,947	5,677	65.5	312,068	128,802	169	33	16.2	4
	1925	1,819	305,600	321,131	13,500	5,814	67.0	325,064	140,312	155	37	19.2	1
Great Northern	1926	8,222	663,082	686,544	37,348	21,418	66.4	1,220,323	534,714	608	145	19.3	169
	1925	8,251	682,516	706,310	37,483	20,670	67.8	1,157,054	534,974	624	162	20.6	139
Minneap., St. P. & S. Ste. M.	1926	4,372	486,629	497,354	4,465	11,415	69.0	593,442	262,755	297	44	12.8	25
	1925	4,375	475,641	487,142	5,564	11,094	71.2	573,372	262,803	300	42	12.4	27
Northern Pacific	1926	6,510	731,148	768,638	41,716	23,445	72.1	1,290,937	597,560	521	140	21.1	103
	1925	6,435	685,430	716,351	40,599	21,270	71.8	1,161,431	540,567	536	171	24.2	113
Oreg.-Wash. R. R. & Nav.	1926	2,185	162,999	173,811	14,088	4,882	70.6	273,181	121,759	142	21	12.9	14
	1925	2,181	160,796	169,917	14,511	4,468	74.2	243,679	113,231	140	22	13.4	16
Central Western Region:													
Atch., Top. & S. Fe (incl. P. & S. F.)	1926	10,143	1,349,940	1,432,691	71,456	40,118	63.8	2,351,717	892,335	793	164	17.1	233
	1925	10,045	1,318,125	1,399,923	69,084	39,400	67.2	2,209,868	883,210	826	182	18.1	235
Chicago & Alton	1926	1,022	272,767	289,627	6,103	6,329	59.9	396,624	168,123	136	23	14.5	28
	1925	1,022	263,566	286,669	3,910	6,233	61.6	377,247	160,654	126	28	18.0	24
Chi., Burl. & Quincy	1926	9,349	1,386,221	1,430,279	51,103	40,586	63.2	2,389,508	1,079,493	808	196	19.5	52
	1925	9,326	1,383,379	1,430,192	52,153	38,501	64.7	2,236,062	1,020,407	823	191	18.8	34
Chi., Rock I. & Pacific	1926	7,564	1,234,206	1,267,231	14,851	30,400	64.1	1,698,209	651,529	539	159	22.8	46
	1925	7,578	1,225,594	1,252,314	8,444	29,952	70.5	1,543,542	649,620	559	162	22.5	49
Denver & R. G. Wn	1926	2,548	198,803	238,037	45,996	5,407	66.1	317,700	141,907	224	49	17.8	46
	1925	2,567	189,984	233,527	44,562	4,827	69.3	279,851	134,887	245	54	17.9	66
Oregon Short Line	1926	2,490	284,223	296,759	19,525	7,467	65.2	453,418	196,822	193	25	11.4	58
	1925	2,414	254,624	268,171	18,645	6,531	67.2	392,283	179,105	185	41	18.0	53
Southern Pac. (Pac. Lines)	1926	8,555	1,241,884	1,361,694	213,187	36,920	65.4	2,203,331	857,035	698	211	23.2	69
	1925	8,517	1,187,164	1,307,967	215,145	35,811	68.2	2,086,045	889,229	691	245	26.1	92
Union Pacific	1926	3,691	735,433	756,484	39,064	28,118	75.0	1,468,562	622,447	484	59	10.9	200
	1925	3,688	700,427	716,220	31,764	25,117	75.0	1,317,988	570,886	489	64	11.6	175
Southwestern Region:													
Gulf, Colo. & S. Fe	1926	1,897	240,292	247,157	4,177	7,150	64.3	426,699	184,817	117	21	15.4	23
	1925	1,897	254,253	266,142	5,654	7,566	64.2	451,628	196,470	114	21	15.5	7
Mo.-Kans.-Tex	1926	1,787	214,650	214,935	3,914	7,441	60.4	429,598	162,836	112	19	14.5	43
	1925	1,787	216,622	216,622	3,767	7,236	60.7	425,913	169,366	113	34	23.0	37
Mo.-Kans.-Tex. of Tex.	1926	1,389	163,400	172,275	2,449	4,350	61.2	250,691	97,529	120	26	17.5	51
	1925	1,389	187,661	197,862	7,479	5,054	61.0	297,942	117,651	114	32	21.7	39
Missouri Pacific	1926	7,288	1,269,809	1,298,923	38,169	36,370	65.5	2,095,293	892,721	534	81	13.2	5
	1925	7,277	1,276,697	1,310,443	37,491	34,171	66.1	1,973,054	871,278	517	99	16.0	...
St. Louis-San Francisco	1926	4,895	797,678	817,860	12,811	17,750	61.6	1,041,734	421,246	437	74	14.5	55
	1925	4,801	808,263	826,042	14,979	17,176	64.2	984,931	412,302	413	71	14.6	26
Southern Pacific Lines (in Tex. and La.)[1]	1926	4,435	620,724	621,583	2,754	14,043	65.1	795,745	324,806	253	75	22.7	32
	1925	4,441	631,106	634,445	5,483	14,533	66.7	833,657	359,479	258	71	21.6	21
Texas & Pacific	1926	1,953	281,067	281,067	1,173	7,620	63.6	435,292	163,702	151	27	15.2	15
	1925	1,953	268,958	268,958	2,362	6,944	65.3	388,561	149,915	150	41	21.5	17

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

Compared with February, 1925, for Roads with Annual Operating Revenues Above $25,000,000

Region, road and year	Average number of freight cars on line daily: Home	Foreign	Total	Per cent unserviceable	Stored	Gross tons per train, excluding locomotive and tender	Net tons per train	Net tons per loaded car	Net ton-miles per car-day	Car miles per car-day	Net ton-miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles including locomotive and tender	Locomotive miles per locomotive day
New England Region:													
Boston & Albany....1926	2,071	5,203	7,274	3.4	12,347	934	367	19.4	415	29.4	7,466	228	78.1
1925	2,569	6,470	9,039	2.9	11,952	954	378	20.5	383	26.8	8,556	208	73.6
Boston & Maine....1926	12,398	16,170	28,568	8.1	12,017	1,148	470	19.4	264	17.8	3,352	178	48.1
1925	13,020	16,132	29,152	8.8	12,823	1,216	503	20.7	305	20.4	3,906	163	49.0
N. Y., New H. & Hartf..1926	16,791	22,901	39,692	13.9	13,841	1,269	513	19.5	194	13.6	4,092	163	53.8
1925	19,045	20,853	39,898	21.8	14,579	1,319	553	21.1	224	14.9	4,638	152	49.4
Great Lakes Region:													
Delaware & Hudson....1926	11,842	6,652	18,494	3.9	18,669	1,594	774	29.1	471	24.6	9,970	184	59.9
1925	8,521	7,180	15,701	6.2	18,226	1,712	873	33.0	733	33.9	12,970	195	71.8
Del., Lack. & Western....1926	18,465	9,146	27,611	3.5	18,961	1,575	640	21.0	377	25.2	10,487	191	62.3
1925	16,568	10,340	26,908	3.7	19,271	1,725	794	26.0	570	31.2	15,448	184	75.1
Erie (inc. Chi. & Erie)...1926	35,831	21,439	57,270	7.6	22,958	2,015	877	26.3	495	29.5	12,201	142	55.9
1925	35,693	20,918	56,611	7.1	23,603	2,121	986	27.7	545	29.2	13,256	142	51.5
Lehigh Valley....1926	22,019	11,095	33,114	6.6	21,691	1,628	695	23.5	367	22.9	9,033	177	43.9
1925	22,460	12,088	34,548	7.4	20,719	1,750	806	27.4	456	25.3	11,626	169	46.3
Michigan Central....1926	14,938	19,572	34,510	4.6	26,089	1,789	636	18.7	362	29.8	6,802	128	62.7
1925	13,768	15,896	29,664	5.8	25,111	1,765	643	20.0	416	31.9	6,751	130	55.3
New York Central....1926	62,170	73,406	135,576	4.4	24,147	2,081	910	26.8	510	30.5	10,677	141	64.8
1925	69,455	74,479	143,934	3.7	22,936	2,088	909	26.6	465	28.3	10,346	141	58.2
New York, Chi. & St. L...1926	13,231	10,283	23,514	5.1	21,993	1,644	656	21.6	607	41.9	8,574	129	71.3
1925	10,024	10,945	20,969	7.2	21,317	1,641	677	22.9	741	49.2	9,318	132	74.2
Pere Marquette....1926	9,251	9,653	18,904	4.4	16,844	1,456	614	24.5	456	29.2	3,934	126	67.1
1925	8,893	8,873	17,766	7.2	15,711	1,476	698	27.5	499	27.9	4,036	128	61.8
Pitts. & Lake Erie....1926	10,896	8,530	19,426	7.7	25,142	2,529	1,382	42.5	352	14.1	29,556	80	64.5
1925	13,643	8,076	21,719	4.5	25,422	2,616	1,492	45.0	331	12.1	31,050	73	59.4
Wabash....1926	13,265	11,641	24,906	2.4	24,007	1,658	654	21.5	632	43.8	6,315	146	68.5
1925	12,941	11,488	24,429	2.5	21,843	1,635	669	22.1	620	40.6	6,074	151	70.4
Central Eastern Region:													
Baltimore & Ohio....1926	63,814	38,878	102,692	5.5	17,800	1,841	893	31.8	585	29.3	11,561	188	72.1
1925	69,473	34,824	104,297	9.9	18,084	1,767	849	30.1	500	25.8	10,031	183	62.2
Central of New Jersey....1926	16,367	15,136	31,503	2.8	14,650	1,616	765	31.4	221	11.3	10,066	193	42.6
1925	17,370	11,271	28,641	3.3	14,736	1,619	776	32.4	262	13.9	10,862	186	44.8
Chicago & Eastern Ill....1926	13,862	4,895	18,757	18.5	21,878	1,644	766	28.5	372	20.8	7,396	151	59.9
1925	15,100	4,198	19,298	19.3	21,145	1,616	774	29.5	326	17.6	6,680	161	54.3
Clev., Cin., Chi. & St. L..1926	18,009	20,631	38,640	4.1	23,728	1,949	912	30.3	593	31.7	9,659	139	64.4
1925	16,027	20,401	36,428	3.7	23,419	1,907	894	30.7	602	32.2	9,228	139	61.5
Elgin, Joliet & Eastern....1926	9,714	7,562	17,276	5.5	14,568	2,173	1,123	39.0	292	11.9	10,972	153	52.2
1925	9,837	8,758	18,595	8.1	14,249	2,258	1,137	38.5	288	11.8	11,674	150	58.6
Long Island....1926	1,898	6,158	8,056	1.0	4,284	767	306	25.9	53	3.5	1,080	385	40.2
1925	1,936	4,836	6,772	0.7	4,822	810	320	24.4	70	4.9	1,207	346	37.4
Pennsylvania System....1926	206,987	96,977	303,964	9.5	17,690	1,775	852	31.7	488	23.9	13,622	156	64.0
1925	210,250	89,744	299,994	10.2	18,165	1,792	855	31.7	441	21.9	12,104	150	52.7
Reading....1926	18,970	20,053	39,023	2.9	21,702	1,789	926	37.2	594	26.8	20,518	172	70.7
1925	22,428	16,119	38,547	2.4	17,778	1,697	873	36.1	525	24.1	17,885	177	60.3
Pocahontas Region:													
Chesapeake & Ohio....1926	29,846	12,673	42,519	3.3	24,836	2,387	1,299	43.1	1,281	51.9	20,683	118	77.5
1925	30,614	11,656	42,270	3.6	23,251	2,261	1,216	42.5	1,100	45.9	17,933	124	69.2
Norfolk & Western....1926	27,942	9,735	37,677	2.4	33,692	2,659	1,447	45.0	1,194	44.3	20,180	160	64.0
1925	28,858	9,775	38,633	2.7	29,245	2,381	1,250	42.0	912	35.8	15,830	167	52.9
Southern Region:													
Atlantic Coast Line....1926	22,446	24,552	46,998	2.9	15,416	1,393	541	22.2	364	27.1	3,493	141	71.8
1925	21,104	18,149	39,253	4.2	15,233	1,348	517	20.4	402	31.7	3,268	129	72.8
Central of Georgia....1926	4,326	7,879	12,205	3.5	16,006	1,238	568	25.3	555	30.7	3,553	158	68.1
1925	4,211	5,762	9,973	5.5	15,048	1,167	511	22.9	550	32.9	2,879	162	67.8
Illinois Central (inc. Y. & M. V.)....1926	41,354	22,968	64,322	4.2	21,811	1,729	765	27.5	743	41.6	7,693	145	73.6
1925	46,057	20,217	66,274	3.6	21,014	1,742	762	26.6	650	37.4	6,926	146	64.8
Louisville & Nashville....1926	43,609	24,125	67,734	6.8	13,661	1,311	646	33.0	603	29.6	8,137	183	98.4
1925	41,394	20,803	62,197	8.4	13,797	1,257	608	32.1	584	29.6	7,232	192	95.9
Seaboard Air Line....1926	12,306	18,732	31,038	1.4	14,653	1,404	573	22.9	391	25.7	3,109	154	66.6
1925	11,322	13,264	24,586	3.2	13,450	1,321	529	21.6	400	27.1	2,621	155	71.5
Southern System....1926	54,040	33,614	87,654	4.8	16,534	1,341	559	23.7	483	31.3	5,273	173	66.8
1925	51,424	30,165	81,589	7.8	16,447	1,316	543	22.4	447	29.5	4,478	170	57.4
Northwestern Region:													
Chi. & North Western....1926	48,164	27,173	75,337	6.7	16,259	1,344	547	23.5	347	23.3	3,085	155	53.3
1925	46,722	27,617	74,339	10.5	14,955	1,242	501	22.6	319	22.0	2,806	161	49.4
Chi., Milw. & St. P....1926	54,938	20,364	75,302	5.8	19,785	1,615	703	24.7	471	29.0	3,172	157	52.3
1925	53,857	24,309	78,166	9.2	17,727	1,519	669	25.1	442	27.0	3,087	171	51.2
Chi., St. P., Minneap. & Om....1926	3,197	8,698	11,895	11.7	12,899	1,070	442	22.7	387	26.0	2,529	170	57.5
1925	3,629	11,048	14,677	10.1	12,862	1,064	459	24.1	341	21.1	2,755	167	62.3
Great Northern....1926	43,281	9,513	52,794	7.9	21,208	1,840	806	25.0	354	21.4	2,323	152	34.3
1925	45,428	11,301	56,729	7.4	18,460	1,695	784	25.9	331	18.9	2,316	164	33.8
Minneap., St. P. & S. Ste M....1926	18,572	5,782	24,354	4.8	13,763	1,219	540	23.0	384	24.1	2,146	131	52.6
1925	19,861	6,621	26,482	4.9	13,355	1,205	553	23.7	254	20.9	2,145	143	51.5
Northern Pacific....1926	35,197	7,039	42,236	6.9	22,382	1,766	817	25.5	503	27.4	3,278	154	43.8
1925	34,579	7,976	42,555	7.0	20,904	1,694	789	25.4	452	24.7	3,000	132	38.3
Oreg.-Wash. R. R. & Nav..1926	6,810	3,326	10,136	6.1	19,734	1,676	747	24.9	428	24.3	1,990	182	41.1
1925	6,288	3,135	9,423	3.3	18,366	1,515	704	25.3	428	22.7	1,854	199	40.7
Central Western Region:													
Atch., Top. & S. Fe (incl. P. & S. F)....1926	55,217	14,604	69,821	7.6	24,480	1,742	661	22.2	454	32.0	3,142	129	56.2
1925	56,096	17,217	73,313	6.7	22,632	1,677	670	22.4	429	28.5	3,140	134	52.1
Chicago & Alton....1926	9,899	4,146	14,045	6.5	17,906	1,454	616	26.6	426	26.8	5,876	172	66.4
1925	9,970	6,474	16,444	3.3	16,351	1,431	610	25.8	347	21.9	5,614	162	67.6
Chi., Burl. & Quincy....1926	50,217	16,527	66,744	5.8	22,506	1,724	779	26.6	577	34.3	4,124	152	52.7
1925	51,710	19,237	70,947	7.6	20,954	1,616	738	26.5	513	29.9	3,908	164	52.2
Chi., Rock I. & Pacific....1926	34,063	18,503	52,566	11.0	17,702	1,376	528	21.4	441	32.0	3,076	164	65.6
1925	33,239	19,201	52,440	10.7	16,175	1,259	530	21.7	439	28.7	3,061	164	62.4
Denver & R. G. Wn....1926	11,159	3,698	14,857	3.4	16,755	1,598	714	26.2	341	19.7	1,989	206	37.2
1925	11,467	3,807	15,274	5.1	14,643	1,473	710	27.9	315	16.2	1,877	228	33.3
Oregon Short Line....1926	8,018	4,087	12,105	5.4	22,161	1,595	692	26.4	579	33.6	2,823	145	51.9
1925	6,967	4,975	11,942	4.3	21,127	1,541	703	27.4	533	28.8	2,650	151	45.5
Southern Pac. (Pac. Lines)1926	31,939	25,746	57,685	6.6	21,565	1,774	690	23.2	530	34.9	3,578	136	61.9
1925	30,116	30,398	60,514	5.6	20,719	1,757	749	24.8	524	30.9	3,729	138	58.1
Union Pacific....1926	17,907	8,715	26,622	11.4	31,363	1,997	846	22.1	832	50.0	6,023	126	52.3
1925	17,745	7,861	25,606	10.7	29,218	1,882	815	22.7	793	46.4	5,529	132	48.3
Southwestern Region:													
Gulf, Colo. & S. Fe....1926	11,531	4,184	15,715	2.9	24,602	1,776	769	25.9	418	25.2	3,479	115	65.1
1925	9,492	5,121	14,613	3.9	23,249	1,776	773	26.0	478	28.7	3,699	117	71.8
Mo.-Kans.-Tex....1926	8,896	3,839	12,735	4.1	27,095	2,001	759	21.9	454	34.3	3,254	108	59.6
1925	8,032	6,384	14,416	4.4	24,755	1,966	782	23.4	416	29.4	3,385	114	53.8
Mo.-Kans.-Tex. of Tex....1926	331	9,841	10,172	9.0	19,982	1,534	597	22.4	328	24.3	2,507	122	42.8
1925	258	13,030	13,288	7.6	19,491	1,588	627	22.3	306	21.7	3,025	115	50.4
Missouri Pacific....1926	28,352	21,592	49,944	6.3	20,557	1,650	703	24.5	637	39.6	4,375	139	77.6
1925	28,336	22,652	50,988	8.3	17,658	1,545	682	25.5	610	36.2	4,276	147	78.2
St. Louis-San Francisco....1926	19,228	12,268	31,496	5.0	17,114	1,306	528	23.7	477	32.6	3,073	167	58.1
1925	19,381	11,637	31,018	5.1	16,050	1,219	510	24.0	473	30.7	3,067	174	62.1
Southern Pacific Lines (in Tex. and La.)[a]....1926	11,752	16,191	27,943	8.4	17,286	1,282	523	23.1	413	27.5	2,616	121	68.1
1925	10,836	15,898	26,734	7.4	17,190	1,321	570	24.7	478	29.0	2,891	126	69.6
Texas & Pacific....1926	6,801	6,373	13,174	3.1	19,312	1,549	582	21.5	407	31.1	2,993	115	56.5
1925	6,746	6,106	12,852	9.8	17,414	1,445	557	21.6	365	27.3	2,742	142	50.7

[a]Includes Franklin & Abbeville, Galveston, Harrisburg & San Antonio, Houston & Shreveport, Houston & Texas Central, Houston East & West Texas, Iberia & Vermilion, Lake Charles & Northern, Louisiana Western, Morgan's La. & Tex. R. R. & S. S. Co., and Texas & New Orleans.

General News Department

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on the west bank of the Mississippi river, Dubuque, Ia., to St. Louis, Mo., inclusive, and points in the northwestern corner of Indiana.

New Lighting Equipment for Boston & Maine Trains

The extension of electric lighting to practically all trains of the Boston & Maine which enter and leave the North Station, Boston, is contemplated in plans announced by the railroad. It is said to be the latest step in the Boston & Maine's effort to make travel by train more attractive, and eventually will be extended to trains operating on other parts of the system.

Material is now under order for the new electric light installation on the first lot of cars and locomotives, the railroad announces. In all, some 600 open platform cars and 200 locomotives are involved in the program, which is to be carried out at the rate of 40 cars and 10 locomotives a month.

To get the maximum results from the improved train lighting, car ceilings will be painted in ivory, a color which provides good reflection under the conditions of railroad service.

The head-end system will be used, the current for the new lighting system being obtained from a turbo-generator mounted on the locomotive.

Head-end lighting has been used for two years on two trains in regular evening service between Boston and Reading Highlands.

March Locomotive Shipments

The Department of Commerce has prepared the following table giving shipments and unfilled orders of locomotives for March and for each month since January, 1925:

Year and month	Shipments					Unfilled orders, end of month				
		Domestic		Foreign			Domestic		Foreign	
	Total	Steam	Electric	Steam	Electric	Total	Steam	Electric	Steam	Electric
1925										
January	98	41	12	43	2	414	322	44	33	15
February	88	69	7	9	3	414	318	51	33	12
March	117	88	13	14	2	461	324	51	71	15
Total (3 months)	303	198	32	66	7	..	..	..	..	..
April	101	78	14	9	0	490	343	41	77	29
May	101	65	9	25	2	478	324	48	75	31
June	114	58	8	42	6	411	274	47	65	25
July	76	56	12	4	4	386	259	39	65	23
August	118	91	6	13	8	334	199	48	72	15
September	100	42	16	34	8	390	278	41	64	7
October	93	47	21	24	1	530	386	40	92	12
November	106	52	8	46	0	585	435	46	64	40
December	104	68	18	14	4	708	557	54	56	41
Total	1,216	755	144	277	40	..	..	..	..	..
1926										
January	121	96	11	14	0	653	506	53	52	42
February	163	101	22	38	2	572	442	60	30	40
March	162	146	11	4	1	780	635	50	54	41
Total (3 months)	446	343	44	56	3	..	..	..	..	..

Report on Gallitzin Derailment

W. P. Borland, director of the Bureau of Safety, has made his report to the Interstate Commerce Commission on the derailment of eastbound passenger train No. 32 on the Pennsylvania Railroad near Gallitzin, Pa., on December 19, last, at 3:27 a. m. Moving at about 60 miles an hour, this train of one locomotive and eight cars was derailed on a curve of eight degrees, 30 minutes, making a very bad wreck; one passenger killed and 33 passengers and four employees injured. The track at this point is laid with 130 lb. rails, 39 ft. long, with 23 ties to the rail length; tie plates are used and each rail has eight rail anchors. The ballast is 2 ft. deep below the bottom of the ties.

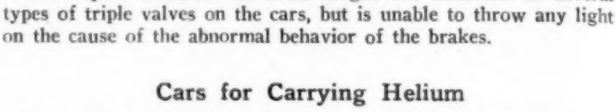
Excessive speed is the whole explanation of the cause. The engineman was severely injured and could not be interviewed until nearly a month after the occurrence of the accident. On two occasions during the trip the air brakes had applied in emergency, from some unexplained cause, and the inspector thinks that because of this and because another undesired emergency application might be expected, the engineman had delayed applying the brakes after passing the summit, 1½ miles west of the point of derailment (this with a view to doing the braking at a favorable location on the crooked line, descending at 1½ per cent) and had delayed a little too long; and then the speed was beyond control. The engineman said that when he recovered consciousness, in the hospital at Altoona, where he was taken, he did not recall anything at all about the trip, until the conductor came to see him and talked with him about it.

The conductor of the train had noted the unexpected stops caused by the wrong action of the brakes but had not considered the conditions unusual. Noting the abnormal speed about one mile over the summit, he remarked to a brakeman that the engineman "had better apply the brakes," but he did not think or act quickly enough to do anything toward stopping the train.

The report discusses at some length the behavior of several types of triple valves on the cars, but is unable to throw any light on the cause of the abnormal behavior of the brakes.

Cars for Carrying Helium

The car built for the United States Army Air Service is designed for transporting helium gas from Fort Worth, Tex., to Langley Field, Va.; Aberdeen, Md., and other points where airships may need to have their supply replenished. The three forged steel tanks or bottles are built to stand a pressure of 2,000 lb. per



Car for Carrying Helium

sq. in. and will carry 207,000 cu. ft. of free helium. The car weighs, empty, 197,200 lb. The maker, the Bethlehem Steel Company, is building another of the same kind at its Johnstown (Pa.) shops. The cars, each 42 ft. long, have Westinghouse friction draft gears, type N-11-A.

Brief of Sprague Company on Complaint Against New York Central

The brief of the Sprague Safety Control and Signal Corporation, on its complaint that the automatic train-stop system of the General Railway Signal Company being installed on the lines of the New York Central fails to comply with section 26 of the interstate commerce act, and with the orders and specifications of the commission, has been filed with the Interstate Commerce Commission. The company also charged that the New York Central, in placing its contract with the General Railway Signal Company, had violated section 10 of the Clayton anti-trust law, and extensive hearings on the complaint were held by the commission.

The brief states that on August 5, 1925, a contract was signed between the New York Central and the General Railway Signal Company for the installation of equipment involving an expenditure of more than $50,000 in one year, that complainant was given no opportunity to bid on the contract, that the usual specifications were not prepared and no opportunity was given independent contractors to bid; and that no proof of compliance with the commission's regulations under section 10 has been or could be filed with the commission. "On the contrary," the brief says, "the uncontradicted evidence shows that the contract was awarded on compensation grossly in excess of the market value of equivalent apparatus; that others, ready, able and willing to complete said contract, could bid considerably less for the same apparatus, and also that the installation provided for in said contract would require changes in existing equipment, to take care of clearances,

estimated by the New York Central Railroad's own engineers to cost $300,000.

"The evidence shows that Herbert S. Balliet, at the time of the making of said contract, was an officer and signal engineer and assistant terminal manager and secretary of the lines committee of the New York Central Railroad Company, and, consequently he was beyond doubt, the agent of that company. Mr. Balliet was also, at such time, the beneficial and record holder of ten shares of the common stock of the General Railway Signal Company, which he sold at a profit of $2,212.50 on an investment of $1,190 in five months. Are railway officials thus to profit at the expense of the safety of the traveling public? It further appears that at said time Mr. Balliet was likewise the recipient of royalties from the General Railway Signal Company under a patent which he had assigned to it." In conclusion the brief denies that "this proceeding is one brought by a 'disgruntled contractor' who seeks to discredit a competitor," saying: "We simply take the position that no unsafe appliance should be installed."

Report on Collision at Castorland, N. Y.

W. P. Borland, director of the bureau of safety, has reported to the Interstate Commerce Commission on his investigation of a collision on the New York Central at Castorland, N. Y., on February 18, when eastbound passenger train No. 59, leaving Utica at 3:30 a. m. for Ogdensburg, collided with a westbound extra freight, while running at high speed, making a very bad wreck. The engineman and fireman of the passenger train were killed and 20 passengers, one mail clerk and three employees were injured. The passenger train held an order to meet the freight at Castorland and the signal at that station also stood against it, but both order and signal were ignored and the collision occurred 400 ft. beyond the station. The engineman and fireman being killed, no explanation can be given of the engineman's failure. He had sounded the whistle a short distance back, showing that he was in possession of his faculties, and he had appeared to be physically normal. He had not sounded the meet whistle, however, and the conductor is held equally at fault with the enginemen for not stopping the train. The conductor recognized that the speed approaching Casterland was too high, but he did not act promptly. He had a standing arrangement with Brakeman Jones to watch for the meeting point whistle, but Jones did not act promptly. The line approaching the station is on a curve, with limited view, but there is a clear view of the train order signal from a point 1,600 ft. west of the station.

Bills in Congress

Senator Phipps and Representative Hardy of Colorado have introduced bills to amend section 204 of the Transportation Act to provide for appeals from adverse decisions by the Interstate Commerce Commission on carriers' claims for reimbursement of deficits for the federal control period to the supreme court of the District of Columbia and to the court of appeals of the District of Columbia. It is also provided that a decision of the director general that the carrier was not under federal control but privately operated during the first six months of the federal control period, shall not be binding on the commission if the carrier is otherwise entitled to relief.

Senator Mayfield of Texas has introduced a bill providing for regulation by the Interstate Commerce Commission of tolls over interstate bridges.

Testimony both for and against Senator Fess' bill, S. 91, to require what shippers call a "clean" bill of lading, was heard by the Senate committee on interstate commerce on April 12. W. H. Chandler, traffic manager of the Merchants' Association of New York, appeared in support of the bill, which was opposed by Alfred P. Thom, Jr., general solicitor of the Association of Railway Executives.

Senator Mayfield made an unsuccessful effort to have his bill to provide for the construction of railroad extensions within a state without the requirement of a federal certificate considered in the Senate on April 12, and Representative Rayburn urged consideration of a similar bill by the House committee on interstate and foreign commerce on April 13 but no action was taken.

Alfred P. Thom, general counsel of the Association of Railway Executives, on April 8 argued before the sub-committee of the Senate committee on interstate commerce against the Pittman bill to deprive the Interstate Commerce Commission of power to remove discrimination against interstate commerce by prescribing rates on intrastate traffic.

Accident Report for 1925

The Interstate Commerce Commission has issued a preliminary memorandum showing the total number of railroad accidents in the United States in the twelve months ending with December, 1925 (For preceding years see *Railway Age*, November 7, 1925, April 4, 1925, November 8, 1924 and September 29, 1923).

The number of passengers killed in train accidents as shown in the present report is 83, which is more than double the number reported in either of the last two preceding years. The excess in 1925 over 1924 is more than accounted for by a single derailment, that at Hackettstown, N. J., on June 16, when 45 passengers were killed. The record for 1925 includes also the derailment at Victoria, Miss., October 27, when 17 passengers were killed, and the collision at Monmouth Junction, N. J., November 12, when nine passengers were killed.

The present record, abstracted below, shows increases in most of the totals as compared with 1924, though the number of passengers killed in train service accidents is less than in 1924; and there is the notable exception of non-fatal injuries in non-train accidents (shopmen, trackmen, etc.) where the decrease is 6.3 per cent. The number of locomotive miles (millions) in 1925 was 1,751.7 as compared with 1,725.8 in the year before and 1,813.2 in 1923. The number of man-hours reported by the Class I roads in 1925 (millions) was 4,448.4 as compared with 4,472 in 1924 and 4,856 in 1923.

The statement shows a final total of 144,201 casualties, as follows:

	1925		1924	
	Killed	Injured	Killed	Injured
In train accidents:				
Passengers	83	2,053	41	2,125
Employees	232	1,483	216	1,477
Other persons	103	376	110	384
Total	418	3,912	367	3,986
In train service accidents:				
Passenger	88	2,899	108	3,229
Employees	996	30,762	976	30,697
Other persons	4,862	10,420	4,764	10,459
Total	5,946	44,081	5,848	44,385
Train and train service accidents	6,364	47,993	6,215	48,371
Non-train accidents, all classes of persons	402	89,442	402	95,368
Grand total	6,766	137,435	6,617	143,739

The total number of passengers killed at highway grade crossings in 1925 (included above) was 2,206; injured, 6,555. These totals for 1924 were 2,149 killed, 6,525 injured; and for 1923, total killed, 2,268; injured 6,314.

Western railroad executives and representatives of the Brotherhood of Railroad Trainmen and the Order of Railway Conductors opened a joint conference in the office of the General Managers' Association at Chicago on April 5 to consider the wage increase demands of the trainmen and conductors. The conference ended on April 7, and it was announced that the matter would be taken under advisement and that another conference would be held on May 3. Only the western group of roads will be involved in the Chicago sessions. At the first series of meetings in Chicago the demands of the conductors, switchmen and trainmen will be considered and later those of other branches of service will be taken up. The conference of the southern roads is scheduled to begin in Washington on April 8.

Brotherhoods Urge Canadian Legislation

A memorandum requesting legislation on various matters was submitted last week at Ottawa to the Canadian cabinet by representatives of the railway brotherhoods. Those requests included restriction of the powers of the Senate, support of the old age pensions scheme now before Parliament, increase in the exemption under the income tax, and elimination of the overlapping in taxes as between the federal and the provincial governments.

The deputation represented the Order of Railway Conductors, the Brotherhood of Locomotive Engineers, the Brotherhood of Railroad Trainmen and the Brotherhood of Locomotive Firemen and Engineers.

Traffic News

The Southern Pacific has applied to the Interstate Commerce Commission for authority under the fourth section to establish water rates on classes and commodities from New York to Houston and from Baltimore to Galveston, Tex., lower than the rates to intermediate points.

Fire destroyed the north wing of the Banff Hotel, the Canadian Pacific resort hotel in the Rocky Mountains, at Banff, Alta., on April 7. Minor damage was done to the center building, but the south wing was not damaged. The hotel will be restored and opened for business by July 1.

The spring meeting of the National Industrial Traffic League will be held at the Hotel Statler, Detroit, Mich., on April 21 and 22. The docket includes the reports of 17 standing and 13 special committees. Arrangements have been made for a joint National Industrial Traffic League-Traffic Club of Detroit dinner at the Hotel Statler on April 21.

An increase from 7,500 lb. to 9,600 lb. in the amount of top ice to be used with carload shipments of cauliflower has been authorized by the Interstate Commerce Commission in a supplemental report on its investigation of "Protective Service Rules on Perishable Freight." Any amount of ice placed in excess of 9,600 lb. on cauliflower and 7,500 lb. on other commodities will be charged for on the basis of the freight rate applicable to the lowest rated commodity in the car. The commission modified its findings to conform to the agreement.

The Shippers' Conference of Greater New York opposes mandatory legislation for the consolidation of railroad systems. Each road should be considered an independent institution, wholly free from artificial restraints, as are other businesses, but subject to such regulatory control. The promulgation by the commission of a general plan of consolidation of all the railroads of the country would be unwise and futile. The Morrow bill to remove the necessity of carriers obtaining certificates of convenience from the Interstate Commerce Commission for new construction or extensions is also disapproved.

The New York Central and the Pittsburgh & Lake Erie, in an answer filed with the Interstate Commerce Commission on April 9 to the petition of the New England Governors' Fuel Committee, protest against making permanent the temporary freight rates on bituminous coal which were put into effect during the anthracite strike. "These respondents are not definitely informed," they say, "as to the measure of relief, if any, afforded by the temporary joint rates during the period of the latest suspension of mining of anthracite coal, and ask that proof be made of that allegation if it is deemed material. These respondents deny that permanent joint rates from the territory involved will be efficacious in obtaining for the people of New England a sufficient supply of household fuel of suitable quality at reasonable prices, and allege on the contrary that the aforesaid results can best be obtained through the supply of bituminous coal from points nearer New England than points in the territory involved."

Maritime Freight Rate Complaints

The freight rate complaints of the Maritime Provinces were summarized before a meeting of the Dominion Railway Board held at Moncton, N. B., last week when those provinces appealed for relief from what they claim to be discrimination against them in other parts of Canada. J. L. Ralston of Halifax submitted their case, and, amongst other things, asked for a blanket rate for the Maritimes to permit entry into Montreal of their products on the same terms as those enjoyed by Toronto. He cited the blanket rate applied to all New England east of the Hudson River on commodities to Chicago, as compared with those eastbound from that city, and over New York, the latter having superior distribution facilities. He declared against the higher freight rates from the Maritimes to New England, as compared with those from Ontario to New England. Strong exception to this blanket rate proposal was taken by E. P. Flintoft for the Canadian Pacific and by Alistair Fraser for the Canadian National. The Board of Trade and the city of Quebec associated themselves with the Maritime proposals, also the Toronto and the Hamilton Boards of Trade.

Northern Pacific Advertisers by Radio

The Northern Pacific now employs the radio as a means of advertising Yellowstone Park, the North Coast Limited and the Northern Pacific generally. Concerts are broadcast each Thursday at 7:30 p. m. from Gold Medal Station, WCCO, St. Paul, Minn. The program includes a travel talk which describes the progress of a tour from the Twin Cities to Yellowstone and return, including the scene aboard the North Coast Limited as it leaves Chicago.

Fast Trains to Montreal

The Boston & Maine and the Canadian Pacific announced on April 7 that the night train from Boston to Montreal would be made faster, beginning April 25, leaving Boston at 11:15 p. m. and running through in nine hours, 50 minutes, or about 2½ hours quicker time than the train runs at present. The southbound train will also have its schedule shortened but not so much. These trains are to have all their cars painted Tuscan red, the standard color of the Canadian Pacific, and the trains will be named "Red-Wing." The announcement says that the red-wing blackbirds are now flying northward. The Red-Wing train will have an observation and buffet car in each direction.

This announcement was followed on the 8th by one from the Central Vermont, saying that the trains between Boston and Montreal over that line (in connection with the Boston & Maine and the Canadian National) would also be made faster on April 25. The day trains both northbound and southbound will be known as the "New England States Limited" and each will have an observation parlor car. The northbound day train will leave Boston at 11:30 a. m. and arrive in Montreal at 9:00 p. m., the fastest schedule between the two cities.

Freight Traffic in February

Freight traffic carried by the Class I railroads in February amounted to 35,414,324,000 net ton-miles, according to reports filed by the carriers with the Bureau of Railway Economics. This was the second greatest February, so far as freight traffic is concerned, on record, having only been exceeded once, in February 1924, when the total was 1.6 per cent greater. The total this year is 1,844,803,000 net ton-miles or 5.5 per cent above that of February last year.

In the Eastern district, the increase over 1925 is 5.7 per cent, in the Southern 12.5 per cent, and in the Western 2.2 per cent.

During the first two months this year, freight moved by the Class I railroads of this country amounted to 73,097,002,000 net ton-miles, the greatest for any corresponding period on record. This exceeded by 2,491,747,000 net ton-miles or 3.5 per cent the previous high record made during the first two months in 1925.

The daily average movement of freight cars in February was the highest for any February on record, 28.6 miles a day, an increase of 1.7 miles over that of February, 1925, and 1.2 miles above February, 1924. It also was an increase of 3.8 miles above that of February, 1923.

The average load per car in February was 27.2 tons, the same as last year but two-fifths of a ton below that of February, 1924.

70 Briefs in Western Rate Case

Approximately seventy briefs have been filed by commercial organizations, companies and state railroad commissions with the Interstate Commerce Commission in the western freight rate case, Ex Parte 87, and the rate structure investigation, No. 17,000. Nearly all the briefs object to any advance in the rates in which those filing them are interested, many of them claim to be entitled to reductions in their rates under the terms of the Hoch-Smith resolution, while a number are devoted to showing that if reductions are to be made under that resolution theirs are not the commodities on which offsetting advances should be made. The American National Livestock Association in its brief says: "The railroads' case is based on the demand for a return of 5¾ per

cent on the values as they state them to be; not that they believe that would be possible, but to draw the attention of the commission to that feature and away from the application of the Hoch-Smith resolution. When they demand increased net railway operating income their finesse smacks of the idea of drawing to their support all the other businesses not producers of agricultural products through fear on their part that to apply the Hoch-Smith resolution would bring an advance in their rates. Thus it is the railroads and their allies—in other words, the field—against agriculture and livestock."

Traffic Statistics for January

Railway freight revenues in January showed a slight reduction, to $356,924,771, as compared with $350,176,494 in January, 1925, although the revenue tons carried one mile showed an increase to 33,613,567,000, as compared with 33,119,448,000 in January, 1925, according to the monthly statement of revenue traffic statistics issued by the Interstate Commerce Commission. The average revenue per ton-mile showed a reduction from 1.057 cents in 1925 to 1.032 cents in January, 1926.

Passenger revenues for the month showed an increase to $89,481,743, as compared with $88,683,229 in January, 1925, and the revenue passengers carried one mile totalled 2,912,826,000 as compared with 2,890,218,000 in January, 1925. The average journey increased from 36.64 miles in 1925 to 39.48 miles in 1926. Exclusive of commutation passengers the average journey was 66.47 miles, as compared with 59.36 in January, 1925.

January was the fifth consecutive month to show an increase in passenger revenues as compared with corresponding months of the previous year, and the seventh to show an increase in passenger miles, following a long period of reduced passenger traffic. The total number of passengers carried in each month shows a decrease as compared with the corresponding month of the year before but this was offset by the increase in the average mileage per passenger.

Mid-West Shippers' Advisory Board Meets at Chicago

Normal business conditions will prevail in the mid-west territory for the next three months, according to the reports presented by 44 special committees representing agriculture and industry at the ninth regular meeting of the Mid-West Shippers' Advisory Board held in Chicago on April 13. Increases in business for the coming quarter were reported by a number of industries. A 15 per cent increase is anticipated over the corresponding period last year for petroleum and petroleum products. The brick and clay products industry expects an increase of about 20 per cent over the second quarter of 1925. An increase in the shipments of canned goods, groceries and feed products over 1925 is expected in Illinois, Indiana and Wisconsin, while a decrease is anticipated in Iowa. Among the industries which report a continuation of the normal level of activity during the next three months are the cement industry, the soap industry, the livestock traffic, and the traffic in acids and chemicals, hides and leather, and corn products. Decreases in activities for the next three months under the corresponding period of 1925 were reported for some trades. The traffic in sand, gravel and stone was forecast at about 85 per cent of the corresponding movement last year, the decrease being due to the delay in road construction work in Illinois. A falling off in the waste material trade was anticipated, as was also a seasonal decline in the movement of grain products.

A report was made by a special committee upon the subject of store-door delivery of freight by the railways at Chicago. After a thorough investigation the committee reached the conclusion that the system now in effect produces practically the same results as would be obtained by the adoption of a store-door delivery system by the roads. At present over 40 per cent of the inbound freight shipments are removed from the railway freighthouses on the day of arrival, and it was felt that there was no necessity at this time to change the present system of delivery, which is not only working satisfactorily but which is capable of further expansion when necessary.

Reports of car supply were made by representatives of all the principal railways. The local transportation situation was described by W. D. Beck, Chicago district manager of the American Railway Association. Conditions in the country as a whole were summarized by L. M. Betts, manager of the Car Service Division of the American Railway Association.

Addresses were made by W. F. Thiehoff, general manager of the Chicago, Burlington & Quincy, and John T. Pirie, who is chairman of the Traffic Committee of the Chicago Association of Commerce.

A resolution was passed recommending that box cars of western ownership be used only for loading traffic that will take the cars to or in the direction of the home road: That when such loading is not available for western ownership box cars that are released at local industrial plants, the cars be turned back empty to the railroad for movement home: That in the selection of box cars for loading into western territory when western ownership cars are not available the equipment used shall be in first grade condition suitable for a return loading with grain or flour and that all practicable effort shall be made to promptly release cars so that prompt relocation to the loading territory may be effected.

The officers of the board were re-elected. The next meeting will be held at Davenport, Iowa, in July.

Freight Commodity Statistics for 1925

Products of agriculture and animals and products showed a decrease in the number of tons transported by Class I railways in 1925 as compared with 1924, while the total freight transported increased 6.18 per cent, according to the Interstate Commerce Commission's statement of freight commodity statistics for 1925 and the last quarter of the year. Manufactures and miscellaneous freight showed an increase of 10.59 per cent. In the table showing tonnage originated, products of forests also showed a slight decrease, although they showed an increase in tons carried. Following is the commission's summary for the last quarter and for the full year as compared with 1925:

	Number of tons originated		
Groups of Commodities	Quarter ended December 31, 1925	Quarter ended December 31, 1924	Per cent of increase 1925 over 1924
Products of agriculture	37,753,683	40,724,099	* 7.29
Animals and products	7,382,758	7,804,570	* 5.40
Products of mines	172,168,102	171,153,101	0.59
Products of forests	24,913,612	25,996,550	* 4.17
Manufactures and miscellaneous	71,174,246	64,367,662	10.57
All L. C. L. freight	10,386,519	10,443,805	* 0.55
Total	323,778,920	320,489,787	1.03
	Total tons carried		
Products of agriculture	71,184,644	75,700,595	* 5.97
Animals and products	12,909,501	13,411,884	* 3.75
Products of mines	318,295,524	304,606,027	4.49
Products of forests	49,606,919	50,569,681	* 1.90
Manufactures and miscellaneous	139,781,803	125,923,922	11.00
All L. C. L. freight	18,117,947	17,711,083	2.30
Total	609,896,338	587,923,192	3.74

	Number of tons originated		
	Year ended December 31, 1925	Year ended December 31, 1924	Per cent of increase 1925 over 1924
Products of agriculture	109,266,288	116,586,794	* 6.28
Animals and products	26,323,862	27,747,010	* 5.13
Products of mines	678,335,025	637,582,265	6.39
Products of forests	107,387,354	108,094,065	* 0.65
Manufactures and miscellaneous	285,244,952	256,736,587	11.10
All L. C. L. freight	40,579,596	40,549,023	0.08
Total	1,247,137,077	1,187,295,744	5.04
	Total tons carried		
Products of agriculture	215,005,373	230,851,877	* 6.86
Animals and products	46,364,225	48,521,368	* 4.45
Products of mines	1,212,933,876	1,114,637,140	8.82
Products of forests	210,131,969	209,359,687	0.37
Manufactures and miscellaneous	553,232,769	500,275,846	10.59
All L. C. L. freight	68,341,976	68,072,787	0.40
Total	2,306,010,188	2,171,718,705	6.18

* Decrease.

Motor Transport News

B. & M. Bus Service on Mohawk Trail

A motor coach service over the Mohawk Trail between Greenfield, Mass., and North Adams, supplementing the passenger trains of the Boston & Maine Railroad, is proposed in petitions which the Boston & Maine Transportation Company has filed with the selectmen of the towns along the trail route. The motor coach route will be operated by the Boston & Maine Transportation Company in co-ordination with the railroad's service by train.

Commission and Court News

Interstate Commerce Commission

The Interstate Commerce Commission has suspended from April 15 until August 13, the operation of certain schedules which propose to change rates, rules, regulations and routes on livestock from points in Texas and New Mexico to points in Kansas and Oklahoma which principally result in increases.

The Interstate Commerce Commission has suspended from April 15 until August 13 a proposed revision in the rates on canned goods, from stations on the Mobile & Ohio in Alabama and Mississippi to various destinations in Mississippi Valley territory, to the Mobile, Ala., basis, resulting generally in increases.

The commission has issued a report in No. 15219, Montgomery Cotton Exchange v. Seaboard Air Line, et al., in which defendants' failure to provide for the concentration and warehousing in transit at Montgomery, Ala., of cotton from points on and west of the Louisville & Nashville between Decatur and Mobile, Ala., destined to south Atlantic ports and to southeastern, Carolina and, via south Atlantic ports, New England Mill points, was found unreasonable but not unduly prejudicial.

The Interstate Commerce Commission has suspended from April 15 until August 13 a proposal to establish on less-than-carload perishable freight, subject to a minimum weight of 12,000 pounds, a rental charge of $5 per car on so-called dry refrigerator cars and $12.50 per car when ice is placed in the bunkers, on traffic moving between points in Carolina and Southeastern territory, except for account of the following lines: Illinois Central, Louisville & Nashville, Mobile & Ohio and Southern Railway system lines.

The commission has issued a report by Commissioner McManamy on the complaint of the Sioux Falls Live Stock Exchange, et al., in which rates on cattle from Sioux Falls, S. Dak., to Albert Lea and Austin, Minn., were found not unreasonable. Rates on like traffic from Sioux Falls to Chicago, East St. Louis and other markets were found unreasonable to the extent indicated in the report. The granting of certain transit arrangements on livestock at Sioux City while denying similar arrangements at Sioux Falls was ordered discontinued.

A finding that the commission has no jurisdiction to require the New York Central and the Cleveland, Cincinnati, Chicago & St. Louis to build two suburban passenger stations in Cleveland, under existing conditions, is recommended by Examiner Knowlton of the commission in a proposed report on a complaint by Peter Witt, of Cleveland, in which the city of Cleveland intervened. The examiner also recommends a finding that no undue discrimination exists in the present situation and that not all citizens can expect to have railroad stations as near to their homes as would be most convenient.

The reaffirmation of the former finding of the Commission prescribing reasonable rates for the interstate transportation of fresh meats and packing house products, from Duluth, Minn., to St. Paul, is recommended by Examiner Alfred S. Knowlton in a proposed report made public by the commission on April 12. The rates prescribed were 28 cents per 100 lb. on fresh meats and 23 cents on packing-house products. The case was reopened after an application of the railroads to the Minnesota Railroad and Warehouse Commission for authority to establish the same rates over the intrastate route.

Refusal of the trunk line railways serving the North Pacific coast to establish through routes and joint or proportional rates with the Nelson Steamship Company, which operates a line of steamers between Pacific coast ports, was found unduly prejudicial by the commission in a decision on a complaint brought by the steamship company. Defendant railroads were ordered to establish through routes and joint rates with complainant between points in California, Oregon, Washington, Idaho, Montana, North Dakota, South Dakota and Minnesota on the same basis and to the same extent as contemporaneously maintained with the Pacific Steamship Company and the McCormick Steamship Company.

Rates on beef-cattle, sheep and lambs, in carloads, from points in Idaho, Oregon and Washington east of the summit of the Cascade mountains, and in Montana west of Billings, Harlowton and Havre, to St. Paul, Minn., Omaha, Neb., and points taking the same rates, have been found unreasonable by the Interstate Commerce Commission, on a complaint of the American National Livestock Association, et al., to the extent that they exceed a scale of rates prescribed. The rates from the same points to St. Louis and Chicago were found unreasonable to the extent that the St. Louis rates exceed those to Omaha by more than 12 cents, that the Chicago rates exceed those to St. Paul by more than 12 cents or those to Omaha by more than 15 cents. Commissioner Woodlock dissented.

Change in Ruling on Short Notice Tariff Changes

On April 3, 1922, the commission amended its administrative ruling No. 58 of Tariff Circular 18-A., dealing with sixth-section applications. To further facilitate the business the commission will require hereafter the filing of all such applications in duplicate. This portion of the rule, as amended, reads, in part: "The Act authorizes the Commission to permit changes in rates or fares on less than the statutory notice; but, it is believed only where peculiar conditions justify it. Confusion and complication must follow indiscriminate exercise of this authority. Applications for permission to change provisions of a tariff on less than statutory notice, or applications for waiver of the provisions of Tariff Circular 18-A, must be sent in duplicate to the Interstate Commerce Commission, and in the prescribed form, on paper 8 in. by 10½ in. Such applications must be over the signature of the president, vice-president, traffic manager, etc., or by a duly authorized attorney and agent, specifying title.

Emergency Coal Rates to Be Reconsidered

The Interstate Commerce Commission has denied petitions on behalf of the New England Governors' Fuel Committee and others, in so far as they request that the emergency rates prescribed on November 28, 1925, in connection with the anthracite investigation, be made permanent. This action is not to be construed, however, as prohibiting the carriers from voluntarily continuing these rates in effect for such additional time beyond April 30 as in their judgment the necessities of the destination territory involved may require.

The proceeding is also reopened for further hearing "with respect to the reasonableness of the rates, and practices on (1) bituminous and semi-bituminous coal and coke from all mines in the states of Pennsylvania, Ohio, Maryland, Virginia, West Virginia, and eastern Kentucky to all points in the Middle Atlantic and New England states, and (2) on semi-anthracite coal from mines in the state of Virginia to all points in the Middle Atlantic and New England states."

The inquiry concerning rates on anthracite from Pennsylvania to Carthage, N. Y., is also reopened for further hearing.

Port Terminal Charges

Railroads having port facilities at North Atlantic ports are directed by the Commission in a notice issued on April 12 to begin the preparation of extensive information requested by the United States Shipping Board regarding their terminal charges and service, this for use at hearings expected to begin shortly in connection with the investigation of charges for wharfage, handling, storage and other accessorial services at Atlantic and Gulf Ports.

The Commission, by order of April 9, 1921, instituted the general investigation upon its own motion and hearings were had at various south Atlantic and Gulf ports. The scope of the proceeding has been broadened to include all Atlantic and Gulf ports instead of south Atlantic and Gulf ports. The general scope of the proceeding relates to the water terminal facilities of railroads at various ports; the revenues received from that service; and the cost of operating those facilities. The commission has concluded to deal first with the north Atlantic ports, and if it develops that further hearings are required at south Atlantic and Gulf ports announcement of such hearings will be served upon the parties.

The Shipping Board requests that the railroads produce testi-

mony or documentary evidence in response to a long list of questions, including full data as to volume of traffic for the year 1924, earnings in detail, ownership of property, etc.

Reduction in Port Charges on Fertilizer Denied

The Interstate Commerce Commission on April 12 issued a decision finding not justified a reduction proposed by the railroads in the charges for handling, storage and wharfage of imported fertilizers at Pensacola, Fla., and Mobile, Ala., when stored at the port from four to twelve months, from $1.60 to 60 cents per net ton. Upon protest of the municipalities and private interests operating port facilities at Wilmington, N. C., Charleston, S. C., and Jacksonville, Fla., the operation of the schedules was suspended until May 8, 1926.

The facilities at Pensacola are operated by the Louisville & Nashville and those at Mobile by the Mobile & Ohio and the Southern. The proposed charges were also published to apply on behalf of the L. & N. at Mobile but that respondent stated that this error would be corrected if the proposed schedules were approved. The 60-cent charge was established by the L. & N. at Pensacola on potash salts on November 9, 1925. The present charge on fertilizer materials other than potash salts at Pensacola and on all fertilizer and fertilizer materials at Mobile is made up as follows:

Wharfage	$.20
Handling between shipside and storage	.30
Handling between storage and cars	.30
Maximum seasonal storage	.80
Total	$1.60

These charges are substantially the same as those maintained at other South Atlantic and Gulf Ports except on potash salts at Pensacola, and on all fertilizer materials at Gulfport, Miss. At the latter, which is served by the Gulf & Ship Island, now operated by the Illinois Central, a charge of 60 cents is and has been maintained on fertilizer materials for many years.

The L. & N. stated that for some time past it had endeavored to induce the Illinois Central to increase the charge at Gulfport, but without result, that accordingly it met the charge at Pensacola on potash salts and now proposed to extend it to other fertilizer and fertilizer materials. The M. & O. and Southern said that they proposed a reduction at Mobile in order to meet the charge established by the L. & N. at Pensacola; that there is much keener competition between Pensacola and Mobile than between Mobile and Gulfport; that, therefore, they felt that they could continue the $1.60 charge irrespective of the situation at Gulfport; that they were opposed to the establishment of the 60 cent charge on potash salts at Pensacola, but now that it has become effective they are obliged to establish the same charge at Mobile or lose the traffic.

The report, by Division 3, Messrs. Campbell, Cox and Taylor, says:

"The Mobile interests are no doubt injuriously affected by the maintenance of the 60-cent charge on potash salts at Pensacola. If the interested carriers do not take proper steps to correct the maladjustment resulting from the maintenance of this charge as well as the 60-cent charge on all fertilizer material at Gulfport, within 60 days from the service of this report, the matter may be called to our attention in an appropriate proceeding. We can not permit this maladjustment to be partially corrected even for a temporary period by the establishment of a charge which the record clearly shows to be below a reasonable minimum. We find that the suspended schedules have not been justified. An order will be entered requiring their cancellation and discontinuing the proceeding."

Commissioner Taylor, concurring in part, said:

"A difference of $1 per ton in favor of Pensacola as against Mobile is unjustifiable; yet the majority would leave the situation as it is, with an admonition to respondents to correct it. Mobile must seek relief through a formal complaint. This is certainly not an adequate remedy. The average time in which a formal complaint is disposed of is in excess of eight months, during which time the entire year's supply of fertilizer will have moved. Even a temporary loss of this character might result in irreparable injury to the business interests of Mobile. If we perpetuate such unlawful discrimination and undue prejudice, we are surely remiss in our duties. While admitting that a maladjustment of this kind exists, to acknowledge that we have no power to correct it in time to prevent irreparable damage, seems to me to place too low an estimate on the powers of this commission."

Foreign Railway News

Mexican Railways' Insurance Policy

The National Railways of Mexico have entered into an agreement with the Mexican-American Insurance Company for $20,000,000 insurance, at a premium of one-half of one per cent. The insurance covers losses by fire, accident and robbery. The risk was divided among ten companies, each participating to the extent of ten per cent.

Soviet Planning Railway Electrification

The Amtorg Trading Corporation, which represents the Russian Soviet Union as a purchasing agent in the United States, is reported to have been conducting negotiations with American electrical manufacturers relative to the electrification of the suburban railway lines around Moscow. Plans are said to have been agreed upon here and forwarded to Moscow for approval.

Spain and France to Build Two Railway Lines Through Pyrenees

The governments of France and Spain have recently agreed upon the construction of two new railway lines through the Pyrenees to connect the railway systems of the two countries and expedite international traffic, according to a Paris dispatch to the Wall Street Journal. One route will go through south of Toulouse, shortening the distance to Barcelona by 60 miles. The line will have a 5-mile tunnel and will be electrified. The other line, southwest of Pau, will have a 3-mile tunnel. The first line will rise to an altitude of 4,700 ft. and the second to 3,700 ft. The country to be traversed by both lines, it is believed, will be extremely attractive to tourists.

South African Railways Favor Local Manufacturers

For some time past South African mercantile and manufacturing interests have been urging upon the government the desirability of making a larger proportion of their purchases in the country instead of indenting orders through the High Commissioner's Office in London, says the Times (London). The government some months ago acceded to the extent of laying down this principle, and it is admitted that, generally speaking, effect has been given to this policy as far as practicable.

The Railways and Harbors Administration, save for an occasional lapse, such as the recent placing of an order for 1,000 grain cars direct with British firms through the High Commissioner's Office, have recognized local channels for the purchase of their supplies, of which, it is said, about 60 per cent are now ordered locally. This department has now voluntarily gone a step farther, and in future contracts with oversea firms will insist that an agent must be appointed in South Africa "who must be legally authorized to sign the contract and to receive all matters and to do all things arising out of the contract." Hitherto this requirement has been exercised "if the Administration so desires," but in future it is to be made obligatory. Local agents are hopeful that this decision will result in an increase in agency business.

The Railways Administration has also shown a disposition of late to assist local producers by lowering railway rates. These reductions, however, apply almost exclusively to agricultural products and have given little satisfaction to the mining and other industries.

Railway Proposed for British Guiana

A commission appointed to advise on the scheme for a railway from the coast of British Guiana to the diamond fields has, says the Times (London), recommended the government of the Colony to invite tenders for the construction of a railway (a) in return for a cash payment to the contractors, the line to be owned and operated by the government; or (b) in return for land grants, the line to be owned by a private company and operated by the company on such terms and conditions in respect of fares, freight rates, and running time as the government may

approve. The commission indicated that they were unanimously in favor of government ownership if it should prove within the Colony's means. The Secretary of State for the Colonies is disposed to think that, according to the tentative estimates submitted to the commission, the possible revenue would not cover the operating expenses and a reasonable rate of interest on the capital cost.

The elective members of the Combined Court (the local legislative body) are not prepared to accept the Secretary of State's dispatch as the last word on the subject of railway construction.

The electives argue that in the dispatch the amount which has accumulated to the credit of sinking fund (which they estimate at between $4,000,000 and $5,000,000) has not been considered, and that this amount should have been deducted from the Colony's commitments.

The government of the Colony is to be asked to instruct the Colonization Board to advertise in England, Canada, the United States and Europe, inviting tenders from capitalists for the construction of a trunk line to the Brazilian frontier. On receipt of such tenders the elective members would decide what further action would be necessary to secure acceptance of a favorable proposal.

British Railway Officers and Union Leaders Protest Against Highway Competition

A deputation of officers of British railways and the railway unions recently called upon the Ministry of Transport to make a formal complaint against unregulated highway competition.

The deputation from the Railway Companies' Association consisted of Wm. Whitelaw (London & North Eastern), Viscount Churchill (Great Western), Brigadier-General Hon. Everard Baring (Southern), E. B. Fielden, M.P. (London, Midland & Scottish), Sir Felix Pole (G. W. R.), Sir Ralph Wedgwood (L. N. E. R.), Sir Josiah Stamp (L. M. & S.), Sir Herbert Walker (S. R.), H. L. Thornhill (L. M. & S.), A. B. Cane, and of the railway unions of J. H. Thomas, M.P. (National Union of Railwaymen), J. Bromley, M.P. (Associated Society of Locomotive Engineers and Firemen), and A. G. Walkden (Railway Clerks' Association).

The deputation desired to impress on the government the serious losses which were being incurred by the railways owing to the increase of road traffic. In recent years traffic formerly carried by railway has been diverted to roads in great and increasing quantities. As regards passenger traffic, bus services have been introduced on practically every road which parallels a railway line. As a result, the railways have lost a large number of short distance passengers, and in addition there has been a considerable decline in the volume of merchandise traffic carried by rail which is attributable to the competition of heavy motor trucks.

The deputation explained that the companies were not in any way hostile to the development of road traffic as such, nor did they desire to be protected from fair competition, but the present diversion of traffic was made possible largely by the fact that the road motor carriers were provided with roads to the cost of construction and the maintenance of which they only contributed a relatively small sum, whereas the railways on the other hand had to provide their own permanent way and were also compelled by statute to provide services which were often unprofitable and to accept all classes of goods. The road hauler, however, was free to run when and where he liked and to select only the most profitable business.

The deputation pointed out that the result of the abstraction by subsidized road competition of their most profitable traffics must be to place on the heavy traffic, which in any case must remain on the railway, an increasing burden. This could not be in the national interest. They, therefore, asked that the road haulers should be called on to pay the whole of the extra expense of road maintenance and construction which was due to the use of the roads by them.

Miscellaneous

The Department of Commerce has received the following report from one of its agents.

The Nagoya Railway bureau has put 2-ton motor trucks on its branch lines in order to reduce expenses where traffic is light. These gasoline cars accommodate 20 passengers and run at a speed of 25 miles an hour. This is the first time gasoline cars have been used on Japanese railways.

Equipment and Supplies

Locomotives

THE BONHOMIE & HATTIESBURG SOUTHERN has ordered one Prairie type locomotive from the Baldwin Locomotive Works.

F. C. DEL AMAGA COMPANIA (Colombia) has ordered two Mikado type locomotives from the Baldwin Locomotive Works.

THE E. B. EDDY COMPANY, LTD., Hull, Canada, has ordered one 0-4-0 tank locomotive from the American Locomotive Company. This locomotive will have 13-in. by 20-in. cylinders and a total weight in working order of 65,000 lb.

THE DELAWARE, LACKAWANNA & WESTERN has ordered 25 three-cylinder Mountain type freight locomotives from the American Locomotive Company. In the *Railway Age* of March 13 this company was reported as inquiring for 25 locomotives.

THE NATCHEZ, COLUMBIA & MOBILE has ordered through the Denkmann Lumber Company, Hammond, La., one Mikado type locomotive from the American Locomotive Company. This locomotive will have 20-in. by 28-in. cylinders and a total weight in working order of 176,000 lb.

Freight Cars

THE BRAZILIAN RAILWAY is inquiring through the car builders for 40 air dump cars of 20 cu. yd. capacity.

THE CHICAGO, BURLINGTON & QUINCY has ordered 500 hopper cars from the American Car & Foundry Company. Inquiry for this equipment was reported in the *Railway Age* of February 20.

Pennsylvania Places Orders for Freight and Passenger Cars

The Pennsylvania has just placed orders for 2,000 automobile box cars and 209 passenger and baggage cars allotted to a number of car builders as follows:

American Car & Foundry Company, 500 automobile box cars and 100 baggage cars.

Bethlehem Steel Company, 600 automobile box cars.

Pressed Steel Car Company, 400 automobile box cars and 35 coaches.

Pullman Car & Manufacturing Corporation, 17 coaches, 7 combination passenger and baggage cars and 8 passenger café cars.

Rallston Steel Car Company, 500 automobile box cars.

Standard Steel Car Company, 22 coaches and 20 electric coaches.

Definite allotment of 25 baggage cars remains in the order but has not yet been decided upon. Inquiry for this equipment was reported in the *Railway Age* of March 6.

Passenger Cars

PENNSYLVANIA RAILROAD—See item under freight cars.

THE MOBILE & OHIO has ordered two 70-ft. combination passenger and baggage gas-electric motor cars from the Electric-Motive Company.

THE BOSTON ELEVATED has ordered 75 cars for elevated service from the Laconia Car Company and 25 from the Wason Manufacturing Company.

THE NATIONAL RAILWAYS OF MEXICO are inquiring for from 5 to 20 of each of the following types of cars: combination postal and express, first class coaches, second class coaches, combination first and second class coaches, combination postal and express cars (narrow gage), and express cars (narrow gage).

Iron and Steel

THE CHICAGO, BURLINGTON & QUINCY is inquiring for 1,600 tons of structural steel for bridge work.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered 200 tons of structural steel for bridge work from the American Bridge Company.

THE NEW YORK CENTRAL has ordered 3,000 tons of steel from the Bethlehem Steel Corporation, for use on a viaduct at One hundred and thirty-seventh street and St. Clair avenue, New York City.

THE MISSOURI PACIFIC has divided an order for 750 tons of structural steel for use between St. Louis, Mo., and Jefferson City, between the Mt. Vernon Bridge Company and the Virginia Bridge & Iron Co.

Machinery and Tools

THE SOUTHERN PACIFIC is inquiring for one ditcher and two locomotive cranes.

THE WABASH has ordered a 90-in. driving wheel lathe from the Niles-Bement-Pond Company.

THE LOUISVILLE & NASHVILLE has ordered a 100-ton turntable from the American Bridge Company.

THE NEW YORK CENTRAL has ordered 5 vertical drill presses from the Niles-Bement-Pond Company.

THE BALTIMORE & OHIO has ordered four locomotive cranes from the American Hoist & Derrick Co.

THE PITTSBURGH & LAKE ERIE has ordered one 25-ton locomotive crane from the Browning Crane Company.

THE MIDVALE STEEL COMPANY has ordered a 48-in. by 46-ft. forge lathe from the Niles-Bement-Pond Company.

THE TEXAS & PACIFIC has ordered a 100-ton bushing press, a 30-in. by 14-ft. lathe and a side head boring mill from the Niles-Bement-Pond Company.

THE ATCHISON, TOPEKA & SANTA FE is inquiring for one 18-in. by 10-ft. heavy duty engine lathe, one motor-driven lathe and one motor-driven double dry grinder.

Signaling

THE PENNSYLVANIA has contracted with the Union Switch & Signal Company to install an electro-mechanical interlocking at Pierron, Ill.

THE ST. LOUIS-SAN FRANCISCO has placed orders with the National Safety Appliance Company for intermittent train stop equipment for 40 additional locomotives complete with forstalling valves.

THE GALVESTON, HARRISBURG & SAN ANTONIO has placed an order with the National Safety Appliance Company for additional train stop equipment including 79 track magnets and equipment for 21 locomotives.

THE READING COMPANY has given to the Union Switch & Signal Company a contract for the installation of electric interlocking at Robesonia, Pa., and for automatic block signals on its line between Robesonia and Womelsdorf, Pa., two miles. Color light signals will be used.

THE SOUTHERN PACIFIC has ordered from the Union Switch & Signal Company, semaphore signals, style B, with 462 relays, 340 switch boxes and other material, for installation on its line in Arizona between Wellton and Picacho, 168 miles. This order, including also material for certain locations in California, will include 176 one-arm, style B, signals, and 89 two-arm.

TOTAL LOSSES BY FIRE paid for in 1925 by the members of the Railroad Insurance Association were $2,887,603, as compared with $2,673,230 in 1924. The figures for 1925, under the different heads, are as follows: Lighting, $21,691; heating, $88,048; power, $20,086; oils, paints, etc., $341,570; electrical defects, $104,859; sparks, $248,000; carelessness (pronounced), $416,632; outside causes, $550,752; miscellaneous, $680,955; unknown, $415,010.

Supply Trade News

W. C. MacFarlane, vice president and general manager of the **Minneapolis Steel & Machinery Company,** Minneapolis, Minn., has been elected president.

Harold A. Hegeman, who has been elected first vice-president and treasurer of the **National Railway Appliance Company,** New York, as was reported in the *Railway Age* of April 10, began his business career with the Ingersoll-Rand Company in its pneumatic hammer department. He left the shop to enter its selling organization and then went to the shops of the New York & Queens County Railway to learn the practical side of electric railroad methods. After serving in the mechanical department and the maintenance of way department he went with the United States Metal & Manufacturing Company as a salesman, and after the liquidation of that company and its railroad interests had been succeeded by the National Railway Appliance Company, he served with the latter company as vice-president and treasurer. He has held this position for the past nine years.

Harold A. Hegeman

W. C. Peters, who has been elected vice-president in charge of engineering and sales of the **National Railway Appliance Company,** New York, was born on September 29, 1891, at St. John, New Brunswick, and was educated at the English High School, Worcester, Mass., taking the mechanical engineering course at the Worcester Polytechnic Institute. He entered the employ of the Boston & Albany in June, 1911, as special apprentice in the locomotive shops at West Springfield, and successively held positions of shop draftsman, foreman, safety appliance inspector, and then served from January, 1915 to April, 1920, in the office of the superintendent of motive power and rolling stock at Boston, Mass., as draftsman and assistant mechanical engineer. He enlisted with the 14th Engineers (Light Railway) in June, 1917, going overseas in July, 1917; the regiment first being assigned to the Third British Army North where it operated on the Somme Front from August, 1917, until after the general British retreat in March, 1918. The regiment then joined the American troops in July in the Chateau-Thierry Sector, subsequently joining in all the future major engagements of the United States Forces. After spending two years overseas Mr. Peters returned as first lieutenant and was discharged in July, 1919. He became associated with the National Railway Appliance

W. C. Peters

Company as manager of the New England department in April, 1920, and since April, 1924, was manager of sales and engineering until his election on April 1 as vice-president in charge of engineering and sales.

Newton E. Dabolt, who for the past six years has been general sales manager in charge of sales for both the lacquer and leather cloth divisions of the **Zapon Company,** has resigned.

The Milwaukee Crane & Manufacturing Corporation, Milwaukee, Wis., has opened an office in Chicago in charge of **Byron B. Evans,** formerly district representative at Pittsburgh, Pa.

J. Reis, vice-president of the **United States Steel Corporation** at New York, has resigned and will retire from active business. Mr. Reis was vice-president of the steel corporation from 1911, and previously was assistant to the president.

Forest Kaufman, district manager in charge of the Kansas City and Oklahoma City offices of the **Portland Cement Association,** with headquarters in Kansas City, Mo., has been promoted to manager of the southwest district, with the same headquarters.

F. O. Farey, chemical engineer of the **Robert W. Hunt Company, Limited,** who has been appointed manager of the Montreal office, was located previous to his recent appointment at Montreal and not at Chicago, as was reported in the *Railway Age* of April 4.

A. H. Ellison, formerly representative of the Cleveland Crane & Enginering Company, Wickliffe, Ohio, has been appointed eastern representative of the **Milwaukee Electric Crane & Manufacturing Company,** Milwaukee, Wis., with headquarters at New York.

Howard B. Jernee has been appointed sales manager of the line shaft bearing department of the **Hyatt Roller Bearing Company,** Newark, N. J., succeeding Frank S. Cole. Mr. Jernee was formerly construction engineer for E. I. du Pont de Nemours & Co., and later, works engineer at the Oakland Motor Car Company plant, Pontiac, Mich.

The National Carbon Company, Inc., a subsidiary of the **Union Carbide & Carbon Corporation,** New York has bought the battery business of the **Manhattan Electrical Supply Company.** The dry cells heretofore sold by the Manhattan Electrical Supply Company under the trade mark Red Seal will hereafter be manufactured and sold by the National Carbon Company, Inc., under the same trade mark.

Willian C. Naegel, for many years with the Kuhlman Car Company, Cleveland, Ohio, has joined the **Lang Body Company,** Cleveland, Ohio, in a sales and engineering capacity and for special development work. The Lang Body Company builds and develops bus bodies both in parlor cars and street car type of equipment. While with the Kuhlman Company and its subsidiaries Mr. Naegel had charge of engineering, building and designing of bus bodies.

O. M. Hullinger, sales engineer on signal bonds and railroad materials for the **Ohio Brass Company,** Mansfield, Ohio, has been transferred from the New York office to Chicago, with headquarters in the Fisher building. Mr. Hullinger will cover the central district in promoting sales of O-B signal bonds and railroad materials. **M. R. Gowing,** who has been covering the central district, has been transferred to the high tension sales department, with headquarters at the home office at Mansfield.

Edwin S. Mills, general manager of sales of the **Illinois Steel Company, Chicago,** has been elected a vice-president. Besides being general manager of sales of the Illinois Steel Company he is manager of sales of the Tennessee Coal, Iron & Railroad Company, and of the Carnegie Steel Campany, all subsidiaries of the United States Steel Corporation. He was born at New Brighton, Pa., on June 5, 1870, and entered business as manager of sales of the Carnegie Steel Company, Cleveland, Ohio, in 1895. From 1910 to 1919 he was subsequently general manager of the Pittsburgh Steamship Company, agent of the Oliver Iron Mining Company, assistant to the vice-president of the United States Steel Corporation at New York, and special sales agent of the Carnegie Steel Company. In 1919 he was promoted to general manager of sales of the Illinois Steel Company, which position he has held until his recent election.

Inland Steel Company

The annual report of the Inland Steel Company for the year ended December 31, 1925, shows net profits of $4,869,734 as compared with $5,474,600 for the previous year, after interest, taxes, depreciation and contributions to the employees' fund. This is an equivalent after preferred dividends, of $3.52 a share earned on the 1,182,799 shares of no par value common stock outstanding, as compared with $4.03 a share during 1924. The amount carried to surplus in 1925 was $1,212,737 as compared with $1,817,602 in the previous year. Assets and liabilities amounted to $84,498,926. Capital assets were $49,140,520, current assets $30,937,997, and deferred charges $1,267,671. Capital stock amounted to $45,000,000, the funded debt $12,675,000, current liabilities $4,637,828, and operating and contingent reserves $2,355,864. The surplus amounted to $19,830,233. The consolidated income and surplus account for the year ending December 31, 1925, follows:

	1925	1924
Net earnings after deducting all expenses incident to operations, including charges for repairs and maintenance	$7,789,587	$7,748,590
Other income (interest received)	208,871	295,973
	$7,998,458	$8,044,563
Less:		
Provision for depreciation of plants	1,974,938	1,507,296
Provision for exhaustion of minerals	84,952	.....
Bond interest	143,834	58,667
Estimated federal taxes	669,000	716,000
	$2,872,724	2,281,963
	5,125,734	5,752,600
Deduct:		
Contribution to Employees' Savings and Profit Sharing Pension Fund	256,000	288,000
Net profits for the year	$4,869,734	$5,474,600
Deduct:		
Dividends paid or declared—		
On preferred stock	700,000	700,000
On common stock	2,956,997	2,956,998
	$3,656,997	$3,656,998
Surplus income for the year	$1,212,737	$1,817,602

Fairbanks, Morse & Co.

The annual report of Fairbanks, Morse & Co., Chicago, for the year 1925 shows a surplus and undivided profit of $12,676,464 as compared with $11,145,378 in 1924. Assets and liabilities amounted to $36,054,897 as compared with $30,739,183 in 1924. Total current assets were $23,395,281; investments, $246,569; deferred charges, $759,151; total fixed assets, $11,581,394, and patents, trade marks and good will, $72,501. Total current liabilities amounted to $6,359,978; reserves for contingencies, $923,139; a special reserve, $1,000,000; capital stock, $15,095,315, and the contingent liability on notes discounted, $1,766,631.

The net billings to customers during the 12 months amounted to $29,357,668, compared with a total of $24,621,893 in 1924. The orders actually booked during the 12 months aggregated $31,668,778, the difference between the billings and the orders booked having been carried over for shipment in 1926. Dividends on the 7 per cent preferred stock were paid quarterly as well as dividends on the common stock at the rate of 65 cents per share per quarter.

The consolidated income and surplus account as of December 31, 1925, is as follows:

	1925	1924
Operating profit for the year ending December 31, after deduction of selling, general, and administrative expenses	$4,525,837	$3,317,900
Profit arising from the sale of the St. Johnsbury Aqueduct properties	.....	50,805
	$4,525,837	$3,368,705
Deduct:		
Depreciation of buildings and equipment	950,349	924,478
Contributions to the pension fund	110,095	97,347
Federal income tax for the year	449,145	290,042
	$1,509,589	$1,311,867
	$3,016,248	$2,056,838
Surplus and undivided profits at December 31, per last report	10,242,453	17,417,966
Surplus and undivided profits at December 31, on books of subsidiaries	902,925	693,000
	$11,145,378	$18,110,966

Add:		
Premium on sale of preferred stock	.....	3,450
Adjustments of surplus on books of subsidiaries..	1,444	.....
	$11,146,822	$18,114,416
Deduct:		
Transfer to capital account to cover issue of 7 per cent preferred stock distributed as dividend on common stock	.....	$7,349,425
Expenses in connection with issue and sale of additional capital stock	.....	168,529
Premium on retirement of 17,000 shares of 6 per cent preferred stock	.....	85,000
Adjustment of surplus on books of subsidiaries..	.....	13,188
		$7,616,142
		$10,498,274
	$14,163,071	$12,555,112
Dividends for the year:		
On 6 per cent preferred stock (now retired)	.....	$40,435
On 7 per cent preferred stock	$526,825	342,840
On common stock	959,064	1,013,004
	$1,485,889	$1,396,279
On outside holdings of Moline Scale Company preferred stock	717	13,455
	1,486,606	1,409,734
	$12,676,464	$11,145,378

Obituary

Hugh Steel, president of the Midwest Car Works, Chicago, died on April 9.

Charles S. Orne, president of the Central Steel & Supply Company and purchasing agent of the Streator Car Company, died on April 10, of cerebral hemorrhage.

Andrew C. Loudon, vice-president of the Superheater Company, Ltd., of Montreal, Quebec, died on April 11 of pneumonia, at his home in Burlington, Vt. Mr. Loudon was born at Valley Field, Quebec, on July 7, 1883, and received the degree of B. S. from McGill University in 1906. He took an apprenticeship course with the Canadian Pacific at Montreal, Quebec, and the Grand Trunk at Portland, Maine, during 1901 and 1902, and from 1906 to 1907 was in the calculating department of the American Locomotive Company. In 1907 he was appointed enginehouse foreman of the Grand Trunk at Island Point, Vt., and from January to December, 1909, served as machinist and draftsman of the Central Vermont and the Delaware & Hudson at Green Island, N. Y. He then entered the test department of the Atchison, Topeka & Santa Fe, and in 1910, went with the Grand Trunk Pacific, where he served consecutively as construction foreman and foreman of locomotive and car repairs. In 1912, he entered the service of Simmons-Boardman Publishing Company as assistant editor of the Car Builders Dictionary & Cyclopedia, and later served as associate editor of the Railway Age Gazette, also as associate editor and then as managing editor of the American Engineer and Railroad Journal (now the Railway Mechanical Engineer). In 1917 he joined the staff of the Superheater Company, New York, and subsequently was appointed vice-president of the Superheater Company, Ltd., of Montreal, Quebec.

Andrew C. Loudon

On the Oil City Branch of the Erie, 36 miles long, from Meadville, Pa., to Oil City, all passenger trains are now drawn by gasoline motor cars. The time-table shows two trains each way daily.

Railway Construction

Atchison, Topeka & Santa Fe.—A contract has been awarded to Jerome A. Moss, Chicago, for the construction of a 25-ft. by 52-ft. yard office at Chicago, to cost $26,000.

Atchison, Topeka & Santa Fe.—Through a subsidiary company, the Corona & Santa Fe, a connecting line will be constructed from Alberhill, Cal., to Porphyry, a distance of 15 miles.

Atchison, Topeka & Santa Fe.—Plans have been prepared for the construction of a 43-stall roundhouse, several small shop buildings and extensive track facilities at Emporia, Kan. The project is estimated to cost approximately $500,000. The construction of the roundhouse and related facilities constitutes the second unit in the Santa Fe's development of a terminal at Emporia. A passenger station and office building have already been constructed.

Boston & Albany.—This company has awarded a contract for the application of stone ballast on Sub-division 1 of its Boston division to the Railway Engineering & Construction Co., Boston, Mass. A contract for ballasting on Sub-division 2 has been awarded to the New England Construction Company, Springfield, Mass. A contract for equipment for cranes in the West Springfield shops has been awarded to the Niles Crane Corporation, Philadelphia, Pa.

Canadian National.—It is reported that bids will be received in the near future for the construction of a foundation and superstructure of a passenger station at Edmonton, Alberta, estimated to cost approximately $1,000,000.

Central of New Jersey.—A contract has been awarded to the McClintic-Marshall Company, Pittsburgh, Pa., for bridgework at Perth Amboy, N. J.

Chicago, Milwaukee & St. Paul.—The expenditure of $250,000 has been authorized for the elevation of the railway's tracks at North Cicero and Montrose avenues, Chicago.

Cleveland, Cincinnati, Chicago & St. Louis.—The engine terminal to be constructed at Riverside, four miles west of Cincinnati, Ohio, at a cost of approximately $3,000,000, will consist of a 37-stall roundhouse with stalls 125 ft. long, a 100-ft. turntable and accessory buildings, water station, etc. The yard work consists of an extension and rearrangement of the present yards, and re-location of the main tracks. The material for the yard will be obtained by excavation from the engine terminal site. Bids for the engine terminal buildings will be received when plans are completed, about May 15.

Corona & Santa Fe.—This company has applied to the Interstate Commerce Commission for a certificate authorizing the construction of a line from a point near Alberhill to a point near Corona, Calif., 15 miles, to be leased to and operated by the Atchison, Topeka & Santa Fe.

Fort Worth & Denver City.—Relocation of the line between Amarillo, Texas, and Dalhart, a distance of 81 miles is reported contemplated.

Lehigh Valley.—A contract has been awarded to Bates & Rogers, Chicago, for the construction of a double track tunnel 4,850 ft. long near Pattenburg, N. J. The tunnel will be 30 ft. wide and 25 ft. high above top of rail, and will be concrete lined except in rock sections. It will be used to supplement an existing tunnel, which is a double track structure now operated as a single track.

Louisville & Nashville.—Hearing on the application of this company for a certificate authorizing the construction of a line of railroad in Harlan county, Ky., and Lee county, Va., to connect the Harlan county coal fields with the Carolina, Clinchfield & Ohio, using trackage rights over the Interstate between Norton and Miller Yard, Va., has been set by the Interstate Commerce Commission for May 3, at Lexington, Ky., before Examiner

Boles. The building of this line was one of the conditions on which the commission authorized the lease of the Clinchfield for 999 years by the Louisville & Nashville and the Atlantic Coast Line.

MAINE CENTRAL.—This company has applied to the Interstate Commerce Commission for a certificate authorizing an extension of 7,700 feet over a bridge to be built by the state of Maine over the Kennebec river for both railway and highway purposes from Bath to Woolwich. The company is to repay 55 per cent of the cost (not exceeding $3,000,000) in semi-annual instalments during a period of 50 years.

MISSOURI-KANSAS-TEXAS.—Bids will soon be received for the construction of a freight terminal and warehouse at Houston, Tex., to cost approximately $1,000,000, as reported in the *Railway Age* of March 27.

NEW YORK CENTRAL.—A contract has been awarded to the Henry P. Burgard Company, Buffalo, N. Y., for the construction of a team driveway at Howard street, that city, at an estimated cost of $40,000. The company has awarded a contract to the T. J. Dailey Construction Company, Batavia, N. Y., for the elimination of a grade crossing at Lewiston road, Oakfield, N. Y., to cost approximately $52,000. A contract has been awarded to the John Johnson Construction Company, Buffalo, N. Y., for the construction of a bridge carrying express and mail tracks of the railroad over William street, that city, at a cost estimated to be $125,000.

NORTHERN PACIFIC.—The Interstate Commerce Commission has authorized this company to construct a new line from Oro Fino, Idaho, to Headquarters, 41 miles. Application of the Oregon-Washington for equal joint possession and operation of this line and of an existing Northern Pacific line from Joseph, Idaho, to Stites, 65 miles, has been denied without prejudice.

OREGON-WASHINGTON.—See Northern Pacific.

ST. LOUIS-SAN FRANCISCO.—The Interstate Commerce Commission has denied the application of this company for authority to construct a branch line from a point west of Covington, Okla., into the Garber oil field (5.4 miles).

ST. LOUIS-SAN FRANCISCO.—Contracts for betterments, including concrete piers, abutments, culverts, etc., on various divisions, have been awarded as follows: To Hedges & Weeks, Springfield, Mo., for work on the Eastern and Southwestern divisions, to cost approximately $25,000; to E. G. Fike, Tulsa, Okla., for work on the Central division, to cost approximately $6,000; to T. H. Johnson, Sedalia, Mo., for work on the Western division, to cost approximately $7,500; to the J. W. McMurry Contracting Company, Kansas City, Mo., for work on the Northern division, to cost approximately $65,000; to the United Construction Company, Cincinnati, Ohio, for work on the Southern and River divisions, to cost approximately $23,000.

SOUTHERN.—A contract has been awarded to J. P. Pettyjohn & Co., Lynchburg, Va., for the construction of an office building at Alexandria, Va.

TEXAS & PACIFIC.—It is reported that an engine terminal and shops will be constructed at Gouldsboro, La., at a cost of $1,500,000. A contract has been awarded to Ware & Co., El Paso, Tex., for the construction of a passenger station and a freight station at Plaquemine, La., to cost $70,000.

TEXARKANA UNION STATION.—The union passenger station at Texarkana, Ark., which will be constructed jointly by the Missouri Pacific, the Texas & Pacific, the St. Louis Southwestern and the Kansas City Southern, will cost approximately $2,000,000. It will be two stories in height, with dimensions of 50 ft. by 282 ft., and with a one-story mail annex, 40 ft. by 286 ft. The exterior will be finished with face brick and limestone, and the interior with enameled brick. Floors will be of concrete. The station will have six covered platforms.

WABASH.—A contract has been awarded to the Foundation Company, New York, for the construction of a locomotive shop at Decatur, Ill.

WABASH.—A contract has been awarded to Jerome A. Moss, Chicago, for the construction of a station 14 ft. by 76 ft. at Granite City, Ill., to cost approximately $20,000. A contract has also been awarded to Jerome A. Moss for the construction of a 33-ft. by 104-ft. storehouse at Chicago, to cost $21,000.

Railway Financial News

ANN ARBOR—*1925 Earnings.*—The annual report for 1925 shows net income of $459,679, equivalent, after allowance for 5 per cent preferred dividends, to $7.99 a share on the common stock. Net income in 1924 was $336,856, or $4.21 a share on the common stock. Selected items from the income statement follow:

ANN ARBOR

	1925	1925	Increase or decrease
Average mileage operated	.....	.....	.....
Railway operating revenues	$5,867,692	$5,532,186	$335,506
Maintenance of way	$615,119	$669,420	—$54,301
Maintenance of equipment	1,171,270	1,051,071	120,206
Tranportation	2,328,358	2,283,078	45,281
Total operating expense	$4,438,783	$4,290,879	$147,904
Operating ratio	75.64	77.56	—1.92
Net revenue from operation	$1,428,909	$1,241,307	$187,602
Railway tax accrual	267,077	289,401	—22,324
Railway operating income	$1,161,291	$951,309	$209,982
Hire of freight cars—Dr. bal.	$210,557	$290,284	—$79,727
Joint facility rent—Cr. bal.	74,179	88,206	—14,027
Net railway operating income	Not shown in report		
Non-operating income	$109.244	$115,088	—$5,844
Gross income	$1,270,585	$1,066,397	$204,138
Interest on funded debt	$491,894	$380,229	$111,664
Total deduction from gross income	$810,856	$729,540	$81,316
Net income	$459,679	$336,857	$122,822

ATLANTA, BIRMINGHAM & ATLANTIC.—*Reorganization Plan.*—The reorganization committee, on behalf of the Atlanta, Birmingham & Coast, a new company, has applied to the Interstate Commerce Commission for a certificate authorizing it to acquire and operate the lines of the A. B. & A., and to issue $5,180,344.07 of 5 per cent cumulative preferred stock and 150,000 shares of common stock without par value. The Atlantic Coast Line is to guarantee dividends on the preferred stock and to receive the entire issue of common stock, providing the cash requirements of the reorganization plan. A sale of the property is to be held, pursuant to a decree in the receivership proceedings, as soon as practicable, the application states. Holders of bonds are to receive $60 in preferred stock for each $100 of bonds.

BOSTON & MAINE.—*New Directors.*—Reginald Foster, vice-president of the New England Mutual Life Insurance Company, and Roger Pierce, first vice-president of the New England Trust Company, have been elected members of the board of directors, succeeding Harry G. Stewart of Worcester, and Edward Lovering of Taunton, Mass.

In a letter addressed to stockholders, Homer Loring, chairman of the executive committee, states that satisfactory progress is being made on the reorganization plan. According to his statement 85 per cent of all the stock has been deposited under the plan and 80 per cent of the bonds. Such delay as has occurred in putting the plan into operation, he explains, has been due to the legal complications resulting because the jurisdiction of four states is involved. He advised stockholders also that John F. Stephens, the noted railway engineer, and George Hannauer, vice-president of the Indiana Harbor Belt, are now studying plans for the rebuilding of the Boston terminal facilities. Mr. Loring further expressed his confidence that the reorganization expenses will make a new low record for a reorganization.

CHESAPEAKE & OHIO.—1925 *Earnings.*—The annual report for 1925 shows net income after charges of $20,152,269, equivalent after preferred dividends to $21.32 a share on the common stock. Net income in 1924 was $12,222,042, equivalent to $16.95 a share. See excerpts from annual report on adjoining pages.

New Directors.—The Scott minority stockholders' committee has reached an agreement with the Van Sweringens whereby George Cole Scott and John Stewart Bryan of Richmond are to be elected directors at the annual meeting on April 20. A statement by the stockholders committee says that the two new directors will assume

(*Continued on page* 1118)

Annual Reports

The Chesapeake and Ohio Railway Company, Forty-Eighth Annual Report

RICHMOND, Va., March 31, 1926.

TO THE STOCKHOLDERS:

The Forty-eighth Annual Report of the Board of Directors, for the fiscal year ended Decemfer 31, 1925, is herewith submitted.

The average mileage operated during the year was 2,614.95 miles, an increase over the previous year of 59.22 miles. The mileage at the end of the year was 2,635.44 miles, an increase of 80.43 miles over mileage on December 31, 1924. See schedule on page 12.

Results for the Year

Operating Revenues		$123,184,103.12
(Increase $15,150,654.77, or 14.02%)		
Operating Expenses		88,981,418.63
(Increase $6,199,715.87, or 7.49%)		
Net Operating Revenue		$34,202,684.49
(Increase $8,950,938.90, or 35.45%)		
Taxes and Uncollected Railway Revenues		6,812,290.40
(Increase $2,623,521.03, or 42.26%)		
Railway Operating Income		$27,390,394.09
(Increase $6,927,317.87, or 33.85%)		
Net Equipment and Joint Facility Rents		2,627,677.32
(Increase $1,197,833.07, or 83.77%)		
Net Railway Operating Income		$30,018,071.41
(Increase $8,125,150.94, or 37.11%)		
Miscellaneous Income		1,494,764.42
(Decrease $391,315.65, or 20.75%)		
Total Gross Income		$31,512,835.83
(Increase $7,733,835.29, or 32.52%)		
Rental and Other Payments		449,584.28
(Increase $34.721.50, or 8.37%)		
Income for year available for interest		$31,063,251.55
(Increase $7,699,113.79, or 32.95%)		
Interest (35.53% of amount available) amounted to		11,035,251.90
(Decrease $227,815.24, or 2.02%)		
Net Income for the year applicable to dividends		$20,027,999.65
(Increase $7,926,929.03, or 65.51%)		
Dividend of 6½% on Cumulative Convertible Preferred Stock, Series "A"	$816,302.50	
Less—Adjustment account Preferred Stock converted into Common Stock during December, 1925, after December 4, 1925, the date as of which stockholders of record were entitled to dividends	1,054.95	815,247.55
Net Income equivalent to 21.18% of $90,691,200 Common Stock outstanding December 31, 1925		$19,212,752.10
Common Stock Dividend—2% on amount of stock held by stockholders of record June 2, 1925, and December 4, 1925	$3,173,498.00	
Less—Adjustments account of conversions of 5% Convertible Bonds and 6½% Series "A" Preferred Stock converted into Common Stock during year	137,612.78	3,035,885.22
Remainder, devoted to improvement of physical and other assets		$16,176,866.88

Financial

During the year 1925 your Company purchased the following equipment:

75 Locomotives.
13 Passenger Train Cars.
100 Cabcose Cars.
2 Ditchers.
4 Dump Cars.
2 Locomotive Cranes.

at an approximate cost of $6,220,764. Equipment Trust, Series "W" was created during the year, under which 4½ per cent Equipment Trust Certificates were issued to the aggregate principal amount of $4,920,000, an amount sufficient to provide approximately 80 per cent of the total cost of the above mentioned equipment. These Certificates are dated October 1st, 1925, and will be due October 1st, 1940, and provide for annual payment of $328,000 on October 1st of each year commencing with 1926.

In addition to the above mentioned equipment covered by Equipment Trust, Series "W," there was purchased from the Lima Locomotive Works, Incorporated, and received during the year, 10 Class C 15 Switching Engines, at a cost of $291,634.08. Payment for these locomotives was made out of current cash in the Treasury of your Company, no Equipment Trust being issued therefor.

On page 5 of your Annual Report for the year ended December 31st, 1924, reference was made to the Trust Indenture dated April 1st, 1916, between your Company and Central Union Trust Company, of New York, under which Indenture 5 per cent Convertible Secured Gold Bonds are convertible up to April 2nd, 1926, into Common Capital Stock at $90 per share. During the year these bonds, amounting to $20,678,000 were converted into Common Capital Stock to the par value of $22,975,555.55 which amount of Common Capital Stock is reflected in your Balance Sheet as of December 31st, 1925, in Table 3, of this report. As of December 31st, 1925, the total 5 per cent Convertible Bonds converted into Common Capital Stock amounted to $24,440,500.

Your Company's 6½ per cent Cumulative Convertible Preferred Stock, Series "A," is convertible into Common Capital Stock on the basis of share for share. During the Month of December, 1925, $461,000 par value of this Preferred Stock was converted into a like amount of Common Capital Stock which increased amount of Common Capital Stock and decreased amount of 6½ per cent Cumulative Convertible Preferred Stock, Series "A," outstanding as of December 31st, 1925, are reflected in your Company's Balance Sheet as of December 31st, 1925, in Table 3, of this report.

In accordance with the provisions of your Mortgage, dated February 23rd, 1892, there was set aside a certain amount of 4½ per cent General Mortgage Bonds to reimburse your Company for expenditures at $25,000 per mile for double track. In accordance with authority of the Interstate Commerce Commission in Finance Docket Number 4399, there was issued by your Company $552,000 par value of 4½ per cent General Mortgage Bonds for this purpose.

In accordance with authority granted by the Interstate Commerce Commission in Finance Docket No. 4518, there was issued by your Company during the year $8,203,000 par value of 5 per cent First Lien and Improvement Mortgage Bonds to reimburse your Company for a like amount of expenditures for additions and betterments to your property.

In accordance with authority granted by the Interstate Commerce Commission in Finance Docket No. 4917, your Company purchased as of July 1st, 1925, all of the outstanding Common Capital Stock, $500,000 par value, and all of the outstanding Refunding and General Mortgage Bonds, $2,200,000 par value, of the Sandy Valley and Elkhorn Railway Company, at a cost of $6,676,-331.32, which payment was made out of the current cash in the Treasury of your Company. The value of the property of The Sandy Valley and Elkhorn Railway Company, including 4 locomotives and 3,384 freight, passenger and work train cars, is approximately $7,900,000.

Application, dated January 11th, 1926, has been made to the Interstate Commerce Commission for authority to issue First Lien and Improvement Mortgage Bonds for a like amount to reimburse your Company for this expenditure, and also to issue First Lien and Improvement Mortgage Bonds for expenditures made for additions and betterments to your property, the aggregate amount of which is $10,621,000 par value.

The changes in the Funded Debt in the hands of the public during the year were as follows:

	Retired
4 per cent Greenbrier Railway First Mortgage Bonds	$22,000.00
4 per cent Big Sandy Railway First Mortgage Bonds	33,000.00
4 per cent Coal River Railway First Mortgage Bonds	29,000.00
5 per cent Kanawha Bridge and Terminal Company First Mortgage Bonds	6,000.00
4 per cent Raleigh and Southwestern Railway First Mortgage Bonds	1,000.00
5 per cent Convertible Secured Gold Bonds	20,678,000.00
Equipment Trust obligations	4,405,800.00
Decrease	$25,174,800.00

Other changes in obligations shown under Funded Debt on your Balance Sheet as of December 31st, 1925, were as follows:

	Increase
4½ per cent Equipment Trust Certificates, Series "W"	$4,920,000.00
4½ per cent General Mortgage Bonds	552,000.00
5 per cent First Lien and Improvement Mortgage Bonds	8,203,000.00
Increase	$13,675,000.00

General Remarks

The Equipment Inventory as of December 31st, 1925, was as follows:

		Increase	Decrease
Locomotives owned	683	.....	22
Locomotives leased	9	9	..
Locomotives covered by Equipment Trust	303	3	..
Total	995	.....	10
Passenger Train Cars owned	356	.....	12
Passenger Train Cars Leased	2	2	..
Passenger Train Cars covered by Equipment Trust	120	15	..
Total	478	5	..
Freight Train and Miscellaneous Cars owned	31,097	347	..
Freight Train and Miscellaneous Cars Leased	3,459	3,459	
Freight Train and Miscellaneous Cars covered by Equipment Trust	24,393	1,102	..
Total	58,949	4,908	..

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The changes during the year in the accrued depreciation of equipment were as follows:

Balance to credit of account December 31, 1924			$17,150,013.72
Amount credited during year ended December 31, 1925, by charges to:			
Operating Expenses		$5,232,313.08	
Profit and Loss		2,975,126.51	
		$8,207,439.59	
Less:			
Accrued Depreciation on equipment retired during same period	$832,226.52		
Accrued Depreciation on leased line equipment:			
Sandy Valley & Elkhorn	92,112.59		
Ashland Coal & Iron Railway	4,387.18		
		928,726.29	
			7,278,713.30
Balance to credit of account December 31, 1925			$24,428,727.02

The credit to accrued depreciation which was offset by a charge to Profit and Loss during the year, represents an adjustment of the depreciation of your equipment on hand on December 31st, 1924, to the actual amount of accrued depreciation applicable to this equipment from the date of entering service to December 31st, 1924, at the actual rates of depreciation charged during the period from July 1, 1907, to December 31st, 1924, and at the rate of 2 per cent on equipment purchased prior to July 1st, 1907, from the date of entering service to July 1, 1907.

The revenue coal and coke tonnage was 52,241,959, an increase of 25.1 per cent; other freight tonnage was 11,754,347, a decrease of 1.4 per cent. Total revenue tonnage was 63,996,306 tons, an increase of 19.3 per cent. Freight revenue was $108,283,190.33, an increase of 17.4 per cent. Freight train mileage was 14,094,945 miles, an increase of 13.8 per cent. Revenue ton miles were 17,467,889,772, an increase of 22.4 per cent. Ton mile revenue was 6.20 mills, a decrease of 4.0 per cent. Revenue per freight train mile was $7.682, an increase of 3.2 per cent. Revenue tonnage per train mile was 1,239 tons, an increase of 7.6 per cent; including Company's freight, the tonnage per train mile was 1,278 tons, an increase of 5.9 per cent. Tonnage per locomotive mile, including Company's freight, was 1,176 tons, an increase of 8.1 per cent. Revenue tonnage per loaded car was 40.3 tons, an increase of 4.1 per cent. Tons of revenue freight carried one mile per mile of road were 6,679,881, an increase of 19.7 per cent.

There were 5,811,872 passengers carried, a decrease of 15.1 per cent. The number carried one mile was 280,509,871, a decrease of 10.2 per cent. Passenger revenue was $9,623,037.23, a decrease of 11.3 per cen Revenue per passenger mile was 3.431 cents, a decrease of 1.2 per cent. Number of passengers carried one mile per mile of road was 112,713, a decrease of 11.6 per cent. Passenger train mileage was 5,619,371, an increase of 0.1 per cent. Passenger revenue per train mile was $1.712, a decrease of 11.4 per cent; including mail and express it was $2.094, a decrease of 8.9 per cent. Passenger service Train Revenue per train mile was $2.155, a decrease of 8.7 per cent.

Passenger revenues were $11,650,941 in 1923 and $10,851,180 in 1924, a decrease of $799,761, or 6.9%. In 1925 passenger revenues were $9,623,038, a decrease of $1,228,142, or 11.3% under 1924 and $2,027,903, or 17.4% under 1923. The number of local passengers carried decreased from 6,861,433 in 1923, to 5,309,315 in 1925, a loss of 22.6%, and revenue from local passengers carried decreased from $8,778,089 in 1923 to $6,884,217 in 1925, a loss of $1,893,872, or 21.6%. Revenue from through passengers carried to and from connecting lines was $2,872,889 in 1923 and $2,738,821 in 1925, a decrease of $134,068, or 4.7%, showing that the loss is largely in local business. The loss of passenger business is due to the establishment of motor bus lines and increased use of private motor cars, because of recent highway improvements, which are continuing in the territory served by your company's lines.

Passenger service requirements are being given careful consideration with a view to taking such action as may be found necessary or desirable to meet this situation.

Operating Expenses increased $6,199,715.87, or 7.5 per cent. Transportation Expenses increased $1,603,272.29, or 4.8 per cent. Ratio of Transportation Expenses to Operating Revenues was 28.2 per cent in 1925, and 30.7 per cent in 1924. Revenue ton miles increased 22.4 per cent.

Roadway, Track and Structures were maintained in good conditions throughout the year.

There were 59,541.3 tons of new rail (21,691.9 tons 130 lb., 37,848.5 tons 100 lb., 9 tons 90 lb.) equal to 347.1 miles of track used in renewal of existing track, an increase of 115.5 miles of track renewed with new rail.

There were 1,359,338 cross ties used in maintaining existing tracks an increase of 181,665.

There were 1,272,559 cubic yards of ballast (511,133 cubic yards stone) used in maintaining existing tracks, an increase of 472,320 cubic yards.

The average amount expended for repairs per locomotive was $11,483.38, an increase of 20.7 per cent over 1924; per passenger train car $2,301.23, an increase of 26.7 per cent over 1924; per freight train car $171.07, a decrease of 16.4 per cent. The increase in the average amount expended per locomotive was due to the increased business requiring more intensive use of locomotives and also to improvement in the general condition of motive power, and the application of new fire boxes to 173 locomotives given general repairs during the year. In 1924 only 142 of the locomotives given general repairs had new fire boxes applied.

In addition to the equipment shown on page 5 as purchased during the year, there was purchased and put into service the following:

147 50-ton Steel Hopper Bottom Gondola Coal Cars.
2 All-Steel Freight House Barges.
1 All-Steel Car Float.
1 Tank Car.
4 Brown Rail Loaders.
3 Motor Cars for Hump Riders.
2 Miscellaneous Equipment.

the net cost of which was $300,966.64.

During the year 1.97 miles of new fourth track was completed through Ashland, Ky., which, together with 1.69 miles of existing Chesapeake and Ohio Railway side tracks and 1.29 miles of existing Ashland Coal and Iron Railway main track (operated by C. & O. Railway under lease) converted into fourth track, made a total of 4.95 miles of fourth track put in operation.

The following sections of third track aggregating 7.57 miles were completed during the current year:

Ashland, Ky., West connections to a point just east of Russell ..... 3.50 Miles
West end of Russell, Ky., to a point just east of Riverton, Ky. ..... 4.07 Miles

The following sections of second track aggregating 26.65 miles were completed during the current year:

Between M. P. 21.5 and G. B. Cabin, on Northern Division, 4.24 miles of new second track, together with 2.16 miles of existing side track converted into second track ..... 6.40 Miles
Between Hampton and Lockwood, on the Big Sandy Division, 4.14 miles of new second track, together with 2.3 miles of existing side track converted into second track ..... 6.44 Miles
Between Buffalo Tunnel and Auxier, on the Big Sandy Division, 6.67 miles of new second track, together with 3.88 miles of existing side track converted into second track ..... 10.55 Miles
Between Fergo and Shelby, on the Big Sandy Division, 2.22 miles of new second track, together with 1.04 miles of existing side track converted into second track ..... 3.26 Miles

At Seth, W. Va., a 100-car passing siding was built; at Ashland, Ky., two storage tracks were constructed; at Russell additional track room was provided at the American Creosoting Company's plant, and at Stevens, Ky., two light repair tracks were built.

Some of the more important bridge work was as follows: Richmond, Va., strengthen foundations of the Richmond viaduct; Clifton Forge, Va., replacing one span of belt line bridge with heavier span; Cabin Creek Junction, W. Va., replacing westbound span bridge No. 4382 with heavier span; Watoga, W. Va., replacing west span of bridge No. 479 with heavier span; replacing seven temporary bridges on Pond Fork Branch with permanent steel bridges; strengthening five bridges on the Dingess Run Branch, four bridges on the Georges Creek Branch and six bridges on the Rum Creek Branch to carry heavier power; filling and strengthening trestles on the Chicago Division, and strengthening bridges at other points to permit handling of heavier power.

At Sproul, W. Va., a 200-ton frame coaling station and necessary tracks were constructed and put in operation.

Combined freight and passenger stations were constructed at Betsy Layne and Wolf Pit on the Big Sandy Division.

At Morrison, Va., nine large storage warehouses and necessary tracks for export business were constructed and put in operation.

At Newport News, Va., two-track float bridge was replaced by four track float bridge with additional tracks and crossovers.

At Lynchburg, Va., new interlocking plant at Norfolk & Western Crossing was completed and put in operation.

Many water station and treating plant improvements were completed, some of the more important being: Gladstone, Va., rearrangement of water station and construction of 150,000 gallon steel storage tank; Staunton, Va., construction of 150,000 gallon steel storage tank; Huntington, W. Va., water treating plant and pumping station; Russell, Ky., 500,000 gallon storage tank, supply line and water columns; Silver Grove, Ky., 50,000 gallon storage tank, chemical house and two water columns.

At Clifton Forge, Va., new eastbound freight terminal, started in 1923, consisting of receiving yard of ten 100 car tracks, thoroughfare track, double track hump with scales in each track, and classification yard of twenty 100 car tracks, was completed and put in operation on April 16th, 1925. The cost of this project was about $3,500,000.

Extensive improvements at Ashland, Ky., which have been under

[ADVERTISEMENT]

GENERAL BALANCE SHEET DECEMBER 31, 1925.

Assets

(Excluding Stocks and Bonds owned of The C. & O. R'y Co. of Indiana and of The C. & O. Equipment Corporation.)

TABLE 3.

Investments:

	Unpledged.	Pledged.	
Investment in Road and Equipment:			
Road			$231,905,884.44
Equipment			126,611,885.82
			$358,517,770.26
Improvements on Leased Railway Property			59,022.55
Sinking Funds			354,666.97
Deposits in Lieu of Mortgaged Property Sold			604,044.00
Miscellaneous Physical Property			514,201.85

Investments in Affiliated Companies:

Stocks	$13,911,232.30	$11,213,999.44	25,125,231.74
Bonds	4,226,292.25	2,210,001.00	6,436,293.25
Notes	1,700,000.00	1.00	1,700,001.00
Advances	779,294.46	.....	779,294.46
			$34,040,820.45
Other Investments.			
Stocks	2.00	.....	2.00
Bonds	458,251.00	385,000.00	843,251.00
Notes	550,208.81	.....	550,208.81
Advances	63,864.43	.....	63,864.43
Miscellaneous	1,700.00	.....	1,700.00
			$1,459,026.24
Total Investments			$395,549,552.32

Current Assets:

Cash in Treasury	8,101,394.56
Cash in Transit	809,733.34
Cash Deposit—Equipment Trust "W" Fund	4,920,000.00
*Cash Deposit—Preferred Stock, Series "A" Proceeds	1,252,572.62
Cash Deposit. Special Fund for Additions and Betterments, New Equipment, Branch Lines, etc.	9,930,886.48
Cash Deposits to pay Interest and Dividends	2,977,934.38
Miscellaneous Cash Deposits	126,210.56
Loans and Bills Receivable	142,733.91
Traffic and Car Service Balances Receivable	5,361,823.32
Net Balance Receivable from Agents and Conductors	721,906.58
Miscellaneous Accounts Receivable	1,715,765.54
Material and Supplies	6,292,177.37
Interest and Dividends Receivable	108,720.83
Rents Receivable	18,187.53
Other Current Assets	158,400.98
Total Current Assets	$42,638,448.00

Deferred Assets:

Working Fund Advances	11,506.60
Insurance and Other Funds	180,426.15
Other Deferred Assets	223,073.79
Total Deferred Assets	$415,006.54

Unadjusted Debits:

Rents and Insurance Premiums Paid in Advance			36,359.92
Other Unadjusted Debits			3,240,893.69
Securities Issued or Assumed:			
Common Capital Stock (see Contra)	$11,000.00	.....	.....
First Lien and Improvement 5% Mtge. Bonds (see Contra)	15,504,000.00	$59,541,000.00	75,045,000.00
General Mortgage 4½% Bonds (see Contra)	552,000.00	487,000.00	1,039,000.00
First Mortgage, R. & S. W. Railway 4% Bonds (see Contra)	40,000.00	.....	40,000.00
Total Unadjusted Debits			$79,401,253.61
Grand Total			$518,004,260.47

*The actual amount of balance of proceeds from sale of Preferred Stock, Series "A," as of December 31, 1925, is $1,802,572.62, of which amount $550,000.00 is invested in United States Treasury 4½% Notes, which are carried in "Other Investments—Notes."

This Company is also liable as a guarantor of the following securities:

Western Pocahontas Fuel Co. Coupon 5% Notes. Due 1919 and 1921 ($500,000 each year), owned by this Company	$1,000,000.00
The Chesapeake and Ohio Grain Elevator Co., First Mortgage 4% Bonds due 1938	820,000.00
Richmond-Washington Co. Collateral Trust Mortgage (C. & O. prop'n ½) 4% Bonds due 1943	10,000,000.00
Louisville and Jeffersonville Bridge Co. Bills Payable (C. & O. prop'n ½) 6% Notes due 1931	147,000.00
Louisville and Jeffersonville Bridge Co. Mortgage (C. & O. prop'n ½) Bonds due 1945	4,500,000.00
Western Pocahontas Corporation, First Mortgage 4½% Bonds due 1945	750,000.00
Western Pocahontas Corporation, Extension Mortgage No. 1, 4½% Bonds due 1945	97,000.00
Western Pocahontas Corporation, Extension Mortgage No. 2, 4½% Bonds due 1946	51,000.00
Norfolk Terminal and Transportation Company First Mortgage 5% Bonds due 1948	500,000.00

Liabilities

(Excluding Stocks and Bonds owned of The C. & O. R'y Co. of Indiana and of The C. & O. Equipment Corporation.)

Capital Stock:

Common	$90,702,280.55	
6½% Cumulative Convertible Preferred Stock—Series "A"	12,097,500.00	
First Preferred (To be retired under plan of February 23, 1892)	3,000.00	
Second Preferred (To be retired under plan of February 23, 1892)	200.00	
Common—The Chesapeake and Ohio Railway Company of Indiana	1,200.00	
	102,804,180.55	
Less—held by or for the Company at date (Common)—(See Contra)	11,000.00	
Total Stock outstanding with public		$102,793,180.55

Funded Debt:

General Funding and Improvement 5% Bonds 1929	3,698,000.00	
Convertible 4½% Bonds 1930	31,390,000.00	
First Mortgage R. & S. W. Railway, 4% Bonds 1936	778,000.00	
First Consolidated Mortgage, 5% Bonds 1939	30,000,000.00	
First Mortgage, Craig Valley Branch, 5% Bonds 1940	650,000.00	
First Mortgage, Greenbrier Railway, 4% Bonds 1940	1,619,000.00	
First Mortgage, Warm Springs Branch, 5% Bonds 1941	400,000.00	
First Mortgage, Big Sandy Railway, 4% Bonds 1944	4,104,000.00	
First Mortgage, Paint Creek Branch, 4% Bonds 1945	539,000.00	
First Mortgage, Coal River Railway, 4% Bonds 1945	2,469,000.00	
First Mortgage, C. & O. Northern Railway Company, 5% Bonds 1945	1,000,000.00	
Convertible 5% Secured Gold Bonds 1946	15,739,500.00	
First Mortgage, Potts Creek Branch, 4% Bonds 1946	600,000.00	
First Mortgage, Kanawha Bridge & Terminal Company, 5% Bonds 1948	435,000.00	
First Mortgage, Virginia Air Line Railway, 5% Bonds 1952	900,000.00	
First Mortgage, R. & A. Division, 4% Bonds 1989	6,000,000.00	
Second Mortgage, R. & A. Division, 4% Bonds 1989	1,000,000.00	
General Mortgage 4½% Bonds 1992	48,129,000.00	
Secured Obligations. Account final settlement Federal Control Period 1930	9,200,000.00	
Secured Obligations to U. S. Government 1931	6,738,523.97	
Secured Obligations to U. S. Government 1932	1,334,500.00	
Equipment Trust Obligations and Contracts.	47,137,000.00	
Total Funded Debt outstanding with public		213,860,523.97
		$316,653,704.52
Held by or for the Company at date: (See Contra)		
First Lien and Improvement 5% Mortgage Bonds 1930	75,045,000.00	
General Mortgage 4½% Bonds 1992	1,039,000.00	
First Mortgage, R. & S. W. Railway, 4% Bonds 1936	40,000.00	
		76,124,000.00

Current Liabilities:

Loans and Bills Payable	50,783.00
Traffic and Car Service Balances Payable	520,724.69
Audited Accounts and Wages Payable	9,173,006.61
Miscellaneous Accounts Payable	463,937.38
Interest Matured Unpaid	782,799.90
Dividends Matured Unpaid	2,123,435.25
Funded Debt Matured Unpaid	19,174.17
Unmatured Interest Accrued	2,450,311.53
Unmatured Rents Accrued	398,760.27
Other Current Liabilities	40,712.01
Total Current Liabilities	16,023,644.81

Deferred Liabilities:

Other Deferred Liabilities	431,135.01
Total Deferred Liabilities	431,135.01

Unadjusted Credits:

Tax Liability	4,287,841.22
Insurance and Casualty Reserves	180,426.15
Accrued Depreciation—Road	195,200.69
Accrued Depreciation—Equipment	24,428,727.02
Other Unadjusted Credits	4,315,791.21
Total Unadjusted Credits	33,407,986.29

Corporate Surplus:

Additions to Property through Income and Surplus	25,235,849.63	
Funded Debt Retired through Income and Surplus	517,126.28	
Sinking Fund Reserves	354,666.97	
Total Appropriated Surplus	26,107,642.88	
Profit and Loss—Credit—Balance	49,256,146.96	
Total Corporate Surplus	75,363,789.84	
Grand Total		$518,004,260.47

[ADVERTISEMENT]

way about two years, were completed. These improvements include two additional freight main tracks on Front Street, which with the two present main tracks used as passenger main tracks, provide four main tracks through the city; construction of yard and other tracks and 200-ton track scale, third main track between Ashland and Russell, Ky., and passenger station with division offices above, costing approximately $2,500,000.

Many improvements were undertaken during the year which have not been completed. Some of the more important projects are:

Clifton Forge, Va., replacing 100-ton scale in westbound yard with 150-ton scale released from eastbound yard. Russell, Ky., replacing one 150-ton track scale on old hump and one 150-ton track scale on new hump with Plate Fulcrum Scales. Low Moor, Va., undergrade crossing. Gauley, W. Va., passing siding to hold 100-car trains. Kanawha City, W. Va., combined freight and passenger depot. St. Albans, W. Va., 500-ton reinforced concrete coaling station.

Hurricane, W. Va., replacing 50,000 gallon water tank with 150,000 gallon steel tank; Shelby, Ky., installing 50,000 gallon steel water tank and three water columns. Edgington, Ky., replacing steam pumping plant with oil burning engines, and Stevens, Ky., additional water station facilities.

Russell, Ky., improvements to engine terminal. This project includes a 14-stall roundhouse, 115-foot turntables, machine and blacksmith shop, storeroom, 1,000-ton reinforced concrete coaling station, power plant, office and other buildings, engine terminal tracks, shop yard, lighting, equipment and machinery; estimated cost $1,250,000.

Peach Creek, W. Va., enlargement of Y. M. C. A. and raising roof of present building.

Huntington, W. Va., new boiler shop.

Russell, Ky., undergrade crossing at Ferry Street.

Vanceburg, Ky., replace bridge No. 5722 over Salt Lick Creek and eliminate gauntlet.

Second track on Logan Division between Harts and Big Creek and second track on Northern Division between Limeville and Sciotoville; Wheeler and Apex; Apex and M. P. 21.5. When the above sections of second track on the Northern Division are completed, this Division will be double tracked, with the exception of the section from Sciotoville to Wheeler, a distance of about 4.5 miles.

Your Company, as of January 1st, 1925, under authority of the Interstate Commerce Commision in Finance Docket No. 4231, leased the following railroads:

Ashland Coal and Iron Railway consisting of a line of railroad extending from Ashland, Ky., to Seaton, Ky., a distance of 22.26 miles, extensive terminals in the City of Ashland, Ky., and 5 locomotives and 77 freight and work train cars.

Millers Creek Railroad, extending from Van Lear Junction, Ky., to Mine No. 155, a distance of 4.35 miles.

Long Fork Railway, extending from Martin, Ky., to Weeksbury, Ky., and branches, Otter Creek, Sizemore, Caleb Fork, Clear Creek and Jacks Creek, a distance of 34.94 miles.

On July 1st, 1925, in accordance with authority of the Interstate Commerce Commission in Finance Docket Number 4917, your Company leased the property of The Sandy Valley & Elkhorn Railway Company, consisting of line of railroad extending from Shelby, Ky., to Dunham, Ky., a distance of 30.34 miles, and 4 locomotives and 3,384 freight, passenger and work train cars.

On the dates of May 14th, 1925, and May 27th, 1925, the Interstate Commerce Commission served on The Chesapeake and Ohio Railway Company and The Chesapeake and Ohio Railway Company of Indiana, respectively, the tentative valuation as of valuation date, June 30th, 1916. Protest to each of these valuations was made within the time prescribed in the order of the Commission. By agreement with the Interstate Commerce Commission, your Company, commencing early in December, has been engaged in informal conferences with the representatives of the Bureau of Valuation of the Interstate Commerce Commission, looking to an agreement with the Commission about matters in dispute.

Among the new industries established along your line during the year were the following:

38 Manufacturers of Farm Implements and Farm Products.
22 Manufacturers of Lumber and Lumber Products.
98 Manufacturers of Mineral, Metal and other Products.

Your Directors acknowledge the great appreciation of the Company for the faithful and efficient services of its officers and employees.

By order of the Board of Directors.

W. J. HARAHAN,
President.

O. P. VAN SWERINGEN,
Chairman.

[Advertisement]

The Hocking Valley Railway Company—Twenty-Seventh Annual Report

Columbus, Ohio, March 2, 1926.

To the Stockholders:

The Twenty-seventh Annual Report of the Board of Directors, for the fiscal year ended December 31, 1925, is herewith submitted.

The average mileage operated during the year was 348.57 miles, the same as the average mileage operated during the previous year. The mileage at end of the year was 348.57 miles.

Results for the Year

Operating Revenues	$19,659,711.92
(Increase $2,216,313.17 or 12.71%.)	
Operating Expenses	14,309,397.28
(Increase $1,130,894.70 or 8.58%.)	
Net Operating Revenue	$5,350,314.64
(Increase $1,085,418.47 or 25.45%.)	
Taxes and Uncollectible Railway Revenue	1,221,538.62
(Increase $1,487.74 or .12%.)	
Railway Operating Income	$4,128,776.02
(Increase $1,083,930.73 or 35.60%.)	
Net Equipment and Joint Facility Rents	*509,562.73*
(Decrease $982,797.36 or 207.68%.)	
Net Railway Operating Income	$3,619,213.29
(Increase $101,133.37 or 2.87%.)	
Other Income	290,494.16
(Decrease $366,323.04 or 55.77%.)	
Total Gross Income	$3,909,707.45
(Decrease $265,189.67 or 6.35%.)	
Rentals and Other Payments	56,243.93
(Decrease $28,611.94 or 33.72%.)	
Income for the year available for interest	$3,853,463.52
(Decrease $236,577.73 or 5.78%.)	
Interest (46.34% of amount available)	1,785,716.96
(Increase $25,760.13 or 1.46%.)	
Income Balance, for the year	$2,067,746.56
(Decrease $262,337.86 or 11.26%.)	
Dividends paid during the year:	
Two dividends of 2% each, aggregating	439,980.00
Balance, devoted to improvement of physical and other assets	$1,627,766.56

Financial

The changes in funded debt shown by balance sheet of December 31, 1925, as compared with December 31, 1924, consisted in the payment of $609,217.56 on equipment trusts.

An analysis of the property accounts will be found on pages 12 and 13, by reference to which it will be seen that additions and betterments were made during the year to the net amount of $2,309,838.05, of which $3,661,734.79 was added to cost of road, and $1,351,896.74 was deducted from cost of equipment.

During the past seventeen years your Company's net addition to property accounts has been as follows:

Equipment	$10,322,557.58
Additions and Betterments	12,765,447.21
	$23,088,004.79

General Remarks

To provide for the needs of your Company in the development of dock and terminal facilities for handling its business through the Toledo gateway, your Company caused to be organized The Hocking Land Company and subscribed for its entire capital stock. It then loaned The Hocking Land Company $1,280,000 on its notes, these funds being used by that company for the purchase at $1,250,000 of about 595 acres of land at Toledo near the mouth of the Maumee River, and the remaining $30,000 used for the payment of taxes, interest etc.

The equipment in service December 31, 1925, consisted of:

Locomotives owned	117	Decrease	6
Locomotives held under equipment trusts	30		
Total	147	Decrease	6
Passenger train cars owned	57	Decrease	4
Freight train and miscellaneous cars owned	6,643	Decrease	1,515
Freight train cars leased under equipment trusts	3,500		
Freight train cars under special trust	47		
Total freight train and miscellaneous cars	10,190	Decrease	1,515

The changes during the year in accrued depreciation of equipment were as follows:

Balance to credit of account December 31, 1924			$4,286,154.56
Amount credited by charges to operating expenses		$907,059.11	
Charges to account, for:			
Accrued depreciation on equipment retired during year—6 locomotives, 1,521 freight, passenger and work cars, and 1 Ford motor truck	$446,662.01		
Accrued depreciation on cars changed in class during year	29,903.90		
Adjustment of accrued depreciation previous year	10.76		
		476,576.67	
			430,482.44
Balance to credit of account December 31, 1925			$4,716,637.00

[Advertisement]

There were 50.81 miles of additional second main track completed and placed in service on the Toledo Division, as follows:—18.67 miles between Ackerman and Delaware, 17.92 miles between Morral and Crawford and 14.22 miles between Carey and Fostoria, being all new construction with the exception of the conversion of 9.31 miles of track formerly used for siding purposes. This completes construction of the double track between Columbus and Fostoria. Eight center sidings (each of 125 cars capacity) were completed and placed in service on the Toledo Division, at Fostoria, (B.&O. Crossing), Alveda, Upper Sandusky, Morral, Marion, Delaware, Hyatts and Linworth. Double length siding, 2.1 miles, was completed and placed in service at Carey Coaling Station. Two tracks at B.&O. Crossing, Fostoria, were extended a total length of 1.2 miles. Fuel storage track at Carey was extended 0.2 miles. Switching lead and set off track, approximately 0.5 miles, was completed at Garden City Pike, Marion.

Approximately 11 miles of yard tracks at Walbridge and 15 miles of yard tracks at Parsons were completed and placed in service.

A new 12-inch water supply line was laid between the Corporation Line at East Broadway, Toledo, and Walbridge, insuring an adequate supply of water, retiring the present 6-inch line between Oakdale Avenue and Walbridge.

A water treating plant of large capacity was completed and placed in service at Walbridge.

	1925.	1924.		
Operating Revenues were..	$19,659,711.92	$17,443,398.75	Inc.	$2,216,313.17
Net Opr. Revenues were..	5,350,314.64	4,264,896.17	Inc.	1,085,418.47
Operating Ratio	72.8%	75.6%	Dec.	2.8%
Tons of Revenue Freight Carried One Mile.....	2,613,880,450	2,259,716,943	Inc.	354,163,507
Revenue Train Load—Tons	1,467	1,454	Inc.	13
Revenue Tons per Loaded Car	47.7	46.6	Inc.	1.1

The revenue coal and coke tonnage was 18,929,125 tons, an increase of 15.3%; other revenue freight tonnage was 3,925,127 tons, an increase of 0.9%. Total revenue tonnage was 22,854,252 tons, an increase of 12.6%. Freight revenue was $17,094,152.60, an increase of 13.8%. Freight train mileage was 1,781,746 miles, an increase of 14.7%. Revenue ton miles were 2,613,880,450, an increase of 15.7%. Ton mile revenue was 6.54 mills, a decrease of 1.7%. Revenue per train mile was $9.594, a decrease of 0.8%. Revenue tonnage per train mile was 1,467 tons, an increase of 0.9%; including Company's freight, the tonnage per train mile was 1,508 tons, an increase of 1.8%. Tonnage per locomotive, including Company's freight, was 1,275 tons, an increase of 1.9%. Revenue tonnage per loaded car was 47.7 tons, an increase of 2.4%. Tons of revenue freight carried one mile per mile of road were 7,498,868, an increase of 15.7%.

There were 410,684 passengers carried, a decrease of 19%. The number of passengers carried one mile was 24,898,904, a decrease of 4.5%. Passenger revenue was $816,864.64, a decrease of 9.1%. Revenue per passenger per mile was 3.281 cents, a decrease of 4.9%. The number of passengers carried one mile per mile of road was 71,432, a decrease of 4.5%. Passenger train mileage was 619,548, a decrease of 1.1%. Passenger revenue per train mile was $1.318, a decrease of 8.2%; including mail and express it was $1.699, a decrease of 5.4%. Passenger service train revenue per train mile was $1.753, a decrease of 5.3%. References were made in reports for last two years to the decrease in the number of local passengers carried and in the revenue therefrom due to the establishment of motor bus lines and increased use of private motor cars. In 1925 there was a further decrease of 25.6% in the number of local passengers carried and 17% in the revenue therefrom due largely to the same causes. There was an increase of 7.6% in the revenue from through passengers.

There were 8 tons of new 130-lb. rails, equal to .04 track miles, 11,681 tons of new 100-lb. rails, equal to 74.34 miles, and 2 tons of new 90-lb. rails, equal to .01 track miles, used in existing main tracks.

There were 293,666 cross ties and 83,218 yards of ballast used in maintaining existing tracks, an increase of 23,403 cross ties and an increase of 39,105 yards of ballast.

The average amount expended for repairs per locomotive was $9,623.99, a decrease of 0.5%; per passenger train car $1,820.59, an increase of 3.6%; per freight train car $168.32, an increase of 18.4%.

Appreciative acknowledgement is hereby made to officers and employees for their efficient service during the year.

By order of the Board of Directors:

W. J. HARAHAN,
President.

O. P. VAN SWERINGEN,
Chairman.

General Balance Sheet, December 31, 1925

ASSETS

Property Investment

Cost of Road	$38,878,114.74	
Cost of Equipment	21,252,151.01	
		$60,130,265.75

Securities of Proprietary, Affiliated and Controlled Companies—Pledged

Stocks	$108,088.66	
Bonds	300,000.00	
		408,088.66

Securities of Proprietary, Affiliated and Controlled Companies—Unpledged

Stocks	$694.00	
Bonds	196,451.80	
Notes	1,280,000.00	
		1,477,145.80

Securities—Issued—Pledged

General Mortgage 6% Bonds, (See Contra)		10,653,000.00
		$72,668,500.21

Working Assets

Cash	$2,598,067.78	
Time Drafts and Deposits	750,000.00	
Special Deposits	418,953.94	
Loans and Bills Receivable	10,000.00	
Traffic Balances	963,003.28	
Agents and Conductors	27,686.82	
Miscellaneous Accounts Receivable	439,076.58	
Other Working Assets	54,679.28	
		$5,261,467.68
Materials and Supplies		1,231,848.85

Securities in Treasury—Unpledged

Stocks	$500.00	
Bonds	2,474,000.00	
(Includes $2,148,000.00 General Mortgage 6% Bonds,—see Contra)		
Notes	87,500.00	
		2,562,000.00

Deferred Assets

Advances to Proprietary, Affiliated and Controlled Companies	$60,387.36	
Advances, Working Funds	6,956.06	
Insurance paid in advance	1,903.65	
Cash in Sinking Funds	650.74	
Special Deposit with Trustee—Mortgage Fund (Includes $558,837.16 Equipment Obligations,—see Contra)	1,075,733.17	
Cash and Securities in Insurance Reserve Fund	86,113.40	
Other Deferred Debit Items	427,100.09	
		1,658,844.47
		10,714,161.00
Total		$83,382,661.21

LIABILITIES.

Capital Stock			$11,000,000.00
Funded Debt			
First Consolidated Mortgage 4½% Bonds.....1999..	$16,022,000.00		
First Mortgage C. & H. V. R. R. 4% Bonds.....1948..	1,401,000.00		
First Mortgage C. & T. R. R. 4% Bonds .....1955..	2,441,000.00		
Ten Year 6% Collateral Notes, 1931-1932..	1,665,000.00		
Six Year 6% Collateral Note, 1930..	700,000.00		
Two Year 5% Secured Gold Notes .....1926..	6,000,000.00		
		$28,229,000.00	
Equipment Trust Obligations... (Includes $558,837.16,—see Contra)		7,556,837.16	
			35,785,837.16
			$46,785,837.16
General Mortgage 6% Bonds, not in hands of public,—(see Contra) .....1949..			12,801,000.00
Working Liabilities			
Traffic Balances	$917,389.41		
Audited Vouchers and Wages Unpaid	1,340,661.87		
Miscellaneous Accounts Payable.	116,971.24		
Matured Interest, Dividends and Rents Unpaid	409,797.50		
Other Working Liabilities	18,383.32		
		$2,803,203.34	
Deferred Liabilities			
Unmatured Interest, Dividends and Rents Payable	$264,218.33		
Taxes Accrued	664,456.95		
Insurance and Casualty Reserves	86,113.40		
Accrued Depreciation—Equipment	4,716,637.00		
Other Deferred Credit Items	728,767.94		
		6,460,193.62	
			9,263,396.96
Appropriated Surplus			
Additions to Property through Income since June 30, 1907..	$293,521.11		
Funded Debt Retired through Income and Surplus	138,756.90		
Other Reserves	41,742.52		
Appropriated surplus against contingent liability for freight claims	13,405.25		
		$487,425.78	
Profit and Loss—Balance		14,045,001.31	
			14,532,427.09
Total			$83,382,661.21

[Advertisement]

Forty-Second Annual Report of the Southern Pacific Lines and Affiliated Companies Year Ended December 31, 1925

Southern Pacific Company

REPORT OF THE BOARD OF DIRECTORS

NEW YORK, N. Y., April 8, 1926.

TO THE STOCKHOLDERS OF THE SOUTHERN PACIFIC COMPANY:

Your Board of Directors submits this report of the operations and affairs of the Southern Pacific Lines and Affiliated Companies for the fiscal year ended December 31, 1925.

Income Account

The following statements of income and of surplus show the income for the year and the accumulated surplus to the close of the year, accruing to Southern Pacific Company stock from the Transportation System and from all *separately operated Solely Controlled Affiliated Companies,* combined:

NET INCOME OF THE SOUTHERN PACIFIC LINES AND SOLELY CONTROLLED AFFILIATED COMPANIES, COMBINED, FOR THE YEAR 1925 COMPARED WITH THE YEAR 1924.

		Year Ended December 31, 1925	+Increase —Decrease †	Per Cent
1.	Net income of Transportation System ..... *	$35,657,410.25	+ $237,507.29	.67
2.	Net income of Affiliated Companies ..... *	2,258,906.67	— 2,812,119.02	55.45
3.	Net income of Transportation System and of all separately operated Solely Controlled Affiliated Companies, combined ..... *	$37,916,316.92	— $2,474,611.73	6.36
4.	Per Cent earned on average amount of capital stock of Southern Pacific Company outstanding during the year:			
	(a) From operations of Transportation System	9.57	— .58	5.71
	(b) From operations of Affiliated Companies	.61	— .84	57.93
	(c) Total	10.18	— 1.42	12.24

* Excludes all inter-company dividends. † Inter-company interest on open accounts was discontinued as of December 31, 1924. To obtain proper comparison of 1925 with 1924, all inter-company interest on open accounts and inter-company dividends included in income account for the year 1924 have been eliminated in arriving at figures representing increases and decreases.

SURPLUS TO DECEMBER 31, 1925, OF THE SOUTHERN PACIFIC LINES AND SOLELY CONTROLLED AFFILIATED COMPANIES, COMBINED

			Debit	Credit
1.	Total corporate surplus at December 31, 1924		—	*$361,818,901.19
2.	Credit balance transferred from income: Transportation System..	$34,297,965.10		
	Affiliated Companies ..	2,232,030.84	—	36,529,995.94
3.	Dividends paid:			
	On capital stock of Southern Pacific Co.:			
	1½ per cent. paid April 1, 1925.....	$5,585,713.58		
	1½ per cent. paid July 1, 1925.....	5,585,713.58		
	1½ per cent. paid October 1, 1925 ...	5,585,713.58		
	1½ per cent. payable January 2, 1926 ..	5,585,713.58		
	Total, Southern Pacific Company..	$22,342,854.32		
	On capital stocks of Transportation System Companies held by the public	266,795.00	$22,609,649.32	
4.	Miscellaneous adjustments during the year		—	3,537,522.03
5.	Credit balance December 31, 1925		379,276,769.84	
			$401,886,419.16	$401,886,419.16

* Includes adjustment on account of cancellation of inter-company interest carried in suspense by Transportation System; also on account of corporate surplus of companies taken into the System during 1925.

The Southern Pacific Company, from time to time in the past, as necessity required or as opportunity offered, has acquired sole control through stock ownership of certain separately operated companies, such as steam and electric railways, coal companies, oil companies, land companies, and other enterprises which are collateral to, but are not a part of, its Transportation System. The acquisition of these companies has been gradual, and while their affairs have been separately reported in the annual report, the income arising from their operation has been included in the income account of the Transportation System only as it has been transferred to your Company from time to time as interest and dividends. At December 31, 1925, however, there were thirty-five of such separately operated Solely Controlled Affiliated Companies (practically all of whose capital stocks are owned within the Southern Pacific System), the book value of the property investments of which aggregated $326,341,031.17. Because of the magnitude of these investments it is considered important to give the results of the operations of the Transportation System (known as "Southern Pacific Lines") and of the separately operated Solely Controlled Affiliated Companies, combined, in order to show the total income accruing to Southern Pacific Company stock from the operation of all solely controlled companies. Statements showing the results of such operations are set forth above. It is considered desirable, however, to maintain the Income Account and Balance Sheet of the Transportation System (Southern Pacific Lines) so as to continue to show separately the net income from the operation of the Transportation System, its investments, and the capital employed by it. These statements, in the form heretofore reported, as well as condensed statements giving the Balance Sheet the Income Account of all separately operated solely Controlled Affiliated Companies, combined, are included in the report.

In the past the Southern Pacific Company has followed the practice of computing and setting up in the accounts, interest on open accounts with its Transportation System Companies and with its separately operated Solely Controlled Affiliated Companies. So far as the accounts between the Southern Pacific Company and the Transportation System Companies are concerned, such interest has been taken into the income accounts as it accrued, but always has been offset and eliminated in preparing the Combined Income Account and the Combined Balance Sheet of the Transportation System. As indicated above, however, the affairs of the separately operated Solely Controlled Affiliated Companies have not been included either in the Combined Income Account or in the Combined Balance Sheet, and while the interest on open accounts with the said Affiliated Companies has been charged against the income of such companies as it accrued, only so much of such interest as has been earned by such Affiliated Companies has been taken into the income account of the Southern Pacific Company, the unearned portion thereof being held in suspense by Southern Pacific Company and dealt with in the Combined Balance Sheet as "Other Unadjusted Credits." (See last paragraph but one on page 13 of 1924 annual report and footnote (e), page 19 of such report.) This practice of setting up inter-company interest on open accounts is no longer considered necessary or desirable, and as of the close of business, December 31, 1924, the practice was discontinued, and the unearned interest theretofore accruing, which was held in suspense at said date, has been cancelled and eliminated from the accounts.

Because of the outside interests involved in the case of Jointly Controlled Affiliated Companies, interest on open accounts with such companies will be set up as it accrues, as in the past. No portion of the operations of Jointly Controlled Affiliated Companies (other than interest and dividends received from such companies) is included in Southern Pacific's income.

Income Account of Southern Pacific Lines

The income account of the Transportation System (Southern Pacific Company and Transportation System Companies, combined, excluding offsetting accounts and inter-company dividends) for the year 1925, compared with the year 1924, was as follows, viz:

	OPERATING INCOME	Year Ended December 31, 1925	+Increase —Decrease ‡	Per Cent
1.	Railway operating revenues ..	$293,074,553.47	+ $17,170,442.69	6.22
2.	Railway operating expenses ..	215,609,318.19	+ 12,557,989.55	6.18
3.	Net revenue from railway operations	$77,465,235.28	+ $4,612,453.14	6.33
4.	Railway tax accruals	21,275,282.02	+ 1,408,177.59	7.09
5.	Uncollectible railway revenues	95,349.48	— 49,189.39	34.03
6.	Equipment rents—Net	5,764,352.06	+ 962,136.88	20.04
7.	Joint facility rents—Net	16,492.50	+ 78,984.56	—
8.	Net railway operating income	$50,313,759.22	+ $2,212,343.50	4.60
	NONOPERATING INCOME			
9.	Income from lease of road ...	$81,853.44	— $8,804.06	9.71
10.	Miscellaneous rent income ...	1,493,682.80	+ 383,497.50	34.54
11.	Miscellaneous nonoperating physical property	314,463.82	+ 53,439.66	20.47
12.	Dividend income	†2,780,976.66	— 6,700.03	.24
13.	Income from funded securities —Bonds and notes	3,175,566.25	— 1,229,736.50	27.91
14.	Income from funded securities —Investment advances	602,345.82	+ 555,658.23	—
15.	Income from unfunded securities and accounts	2,365,929.66	+ 1,280,998.45	118.07
16.	Income from sinking and other reserve funds	947,737.96	+ 26,595.24	2.89
17.	Miscellaneous income	536,886.76	+ 151,446.75	39.29
18.	Total nonoperating income.	$12,299,443.17	+ $1,206,395.24	10.88
19.	Gross income	$62,613,202.39	+ $3,418,738.74	5.78

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	DEDUCTIONS FROM GROSS INCOME				
20.	Rent for leased roads	$227,879.69	—	$5,088.19	2.18
21.	Miscellaneous rents	760,991.62	+	17,256.58	2.32
22.	Miscellaneous tax accruals	206,700.11	+	76,607.72	58.89
23.	Interest on funded debt—Bonds and notes	25,335,856.71	+	3,314,402.26	15.05
24.	Interest on funded debt—Nonnegotiable debt to affiliated companies	3,478.26	—	698.63	16.73
25.	Interest on unfunded debt	212,340.94	—	176,599.84	45.41
26.	Amortization of discount on funded debt	30,198.60	—	42,538.36	58.48
27.	Maintenance of investment organization	38,880.47	+	10,604.67	37.50
28.	Miscellaneous income charges	139,465.74	—	12,714.76	8.36
29.	Total deductions from gross income	$26,955,792.14	+	$3,181,231.45	13.38
30.	Net income	*$35,657,410.25	+	$237,507.29	.67
	DISPOSITION OF NET INCOME				
31.	Income applied to sinking and other reserve funds	$1,232,776.40	+	$ 29,397.22	2.44
32.	Income appropriated for investment in physical property	126,668.75	—	64,638.87	33.79
33.	Total appropriations	$1,359,445.15	—	$35,241.65	2.53
34.	Income balance transferred to credit of profit and less	$34,297,965.10	+	$272,748.94	.80

† Excludes all inter-company dividends. * Includes $1,955,396.59, representing entire net income from the operation of the property of the Houston & Texas Central R. R. Co. for the year 1925, during which period about 24 per cent of the capital stock of said company was held by the public. Since the close of the year such stock has been purchased by Southern Pacific Company. ‡ Inter-company interest on open accounts was discontinued as December 31, 1924. To obtain proper comparison of 1925, with 1924, all inter-company interest on open accounts and inter-company dividends included in income account for the year 1924 have been eliminated in arriving at figures representing increases and decreases.

The causes of the principal increases and decreases in the income account of the Transportation System, are explained below, viz:

NONOPERATING INCOME

The increase of $383,497.50 in the account Miscellaneous Rent Income is due, principally, to rent received from property, formerly belonging to Los Angeles Public Market Company, taken over during the year by the Southern Pacific Company; and to increase in ground rent received from industrial concerns.

Securities—Bonds and Notes, is due, principally, to decrease in interest received on United States Treasury Notes and other securities, previously held as investments, which were sold during the year.

The increase of $555,658.23 in the account Income from Funded Securities—Investment Advances represents, principally, interest accruing prior to January 1, 1925, taken into account during the current year.

Of the increase in the account Income from Unfunded Securities and Accounts, the sum of $470,000 is due to an increase in interest received on demand loans, and the remainder is due, principally, to an increase in interest on company's own funds used for construction.

The increase in the account Miscellaneous Income is due, principally, to royalties received on oil and gas taken from lands owned at Wortham, Texas.

DEDUCTIONS FROM GROSS INCOME

The increase in the account Miscellaneous Tax Accruals is the result, principally, of including in that account last year, a credit adjustment on account of taxes for prior years, which under the regulations of the Interstate Commerce Commission, are properly includible in Railway Tax Accruals.

The increase of $3,314,402.26 in the account Interest on Funded Debt—Bonds and Notes is made up, principally, as follows: Of $1,526,350, representing the difference between a full year's interest this year and the amount of interest accruing in 1924 on the $29,400,000 of Southern Pacific Company, Twenty-year Five Per Cent. bonds and on Southern Pacific Equipment Trust Certificates—Series G, issued last year; of $979,180, representing interest accruing this year on $40,000,000 Central Pacific Railway Company Thirty-five year Five Per Cent. Guaranteed Gold bonds and on $10,491,000 of Southern Pacific Equipment Trust Certificates—Series H, issued this year; of $392,000, representing difference of a full year's interest this year and the interest accruing subsequent to November 1, 1924, on outstanding bonds of El Paso & Southwestern, taken into the System November 1, 1924; and of $368,107, representing interest accruing from May 1, 1925 to December 31, 1925, on outstanding bonds of San Antonio & Arkansas Pass Railway Company, taken into the System May 1, 1925.

The decrease of $176,599.84 in the account Interest on Unfunded Debt is the result, principally, of a charge to that account last year, representing the interest on deferred payments for terminal property, the principal of which was paid off last year.

The dividends paid for 1925 were appropriated from the profit and loss surplus and, therefore, do not appear in the income account. Payments for 1925, amounted to $22,609,649.32, compared with $20,943,094.32, for 1924. The increased of $1,666,555.00 is made up of $1,400,000, representing the difference between a full year's dividend on the $28,000,000 of capital stock issued November 1, 1924, in connection with the acquisition of the El Paso and Southwestern Lines, and the amount of dividend on such stock paid during 1924; and of $266,555, representing dividends paid during the year on $2,423,200 of capital stock of Houston and Texas Central Railroad Company held by the public. The figures for both this year and last year include $240, representing dividends on stocks of other Transportation System Companies, held by the public.

Transportation Operations—Southern Pacific Lines

The following table shows the Net Railway Operating Income and Traffic Statistics of the Transportation System for the year 1925 compared with those for the year 1924:

		Year Ended December 31, 1925	+ Increase — Decrease	Per Cent
1.	Average miles of road operated	12,950.25	+ 60.34	.47
	NET RAILWAY OPERATING INCOME			
	RAILWAY OPERATING REVENUES			
2.	Freight	$211,314,581.67	+ $4,952,234.68	2.40
3.	Passenger	56,101,352.70	— 2,717,315.57	4.62
4.	Mail and express	11,054,123.49	— 1,183,621.70	9.67
5.	All other transportation	8,052,860.91	+ 502,590.37	6.66
6.	Incidental	6,822,288.31	+ 171,209.62	2.57
7.	Joint facility—Credit	260,824.31	+ 78,967.57	43.42
8.	Joint facility—Debit	*531,477.92*	— 456,531.88	609.15
9.	Total railway operating revenues	$293,074,553.47	+ $1,347,533.09	.46
	RAILWAY OPERATING EXPENSES			
10.	Maintenance of way and structures	$40,110,806.20	— $2,136,021.54	5.06
11.	Maintenance of equipment	49,196,332.98	— 1,048,247.37	2.09
12.	Total maintenance	$89,307,139.18	— $3,184,268.91	3.44
13.	Traffic	5,638,295.11	— 57,518.83	1.01
14.	Transportation	106,977,410.53	+ 3,151,742.19	3.04
15.	Miscellaneous operations	4,706,362.26	+ 503,190.25	11.97
16.	General	10,513,785.75	+ 507,696.37	5.07
17.	Transportation for investment—Credit	*1,533,674.64*	— 123,986.38	8.80
18.	Total railway operating expenses	$215,609,318.19	+ $796,854.69	.37
19.	Net revenue from railway operations	$77,465,235.28	+ $550,678.40	.72
20.	Railway tax accruals	$21,275,282.02	+ $366,237.26	1.75
21.	Uncollectible railway revenues	95,349.48	— 56,479.11	37.20
22.	Railway operating income	$56,094,603.78	+ $240,920.25	.43
23.	Equipment rents—Net	5,764,352.06	+ 423,695.79	7.93
24.	Joint facility rents—Net	16,492.50	— 21,048.48	56.07
25.	Net railway operating income	$50,313,759.22	— $161,727.06	.32
	TRAFFIC STATISTICS			
	(STEAM RAIL LINES) FREIGHT TRAFFIC			
26.	Freight service train-miles	26,145,924	+ 625,864	2.45
27.	Tons carried—revenue freight	59,749,130	+ 118,456	.20
28.	Tons one mile — revenue freight	14,581,434,596	+ 602,426,945	4.31
29.	Loaded cars per train	27.63	+ .91	3.41
30.	Net tons per train—all freight	631.11	+ 11.68	1.89
31.	Revenue per ton-mile—revenue freight	1.382 cents	— .021 cents	1.50
32.	Average distance carried — revenue freight	244.04	+ 9.61	4.10
	PASSENGER TRAFFIC			
33.	Passenger service train-miles	26,654,174	+ 755,701	2.92
34.	Passengers carried—revenue	14,409,391	— 1,470,674	9.26
35.	Passengers one mile—revenue	1,858,621,528	— 51,824,193	2.71
36.	Passengers per train—revenue passengers	67.63	— 4.23	5.89
37.	Revenue per passenger-mile —revenue passengers	2.882 cents	— .060 cents	2.04
38.	Average distance carried — revenue passengers	128.99	+ 8.69	7.22

* For the purpose of comparison, the 1924 figures used in determining the increases and decreases shown in the above statement include the operations for the entire year 1924 of the El Paso & Southwestern, taken into the System, November 1, 1924, and the operations for the period May 1, to December 31, 1924, of the San Antonio & Aransas Pass, taken into System, May 1, 1925; while the 1924 figures used in determining the increases and decreases shown in the Income Account of the Southern Pacific Lines, represent the operations of the lines actually included in the System in 1924, during the period while so included.

The following tabulation gives the transportation operations for the years 1922, 1923, 1924, and 1925, compared with the year 1917, the last year prior to Federal control, and with 1921, the first complete year subsequent to Federal control, the figures being given in round thousand dollars:

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	1925	1924	1923	1922	1921	1917
Operating revenues	$293,074	$291,727	$287,205	$262,519	$269,494	$193,971
Per cent. of 1917	151.09	150.40	148.07	135.34	—	—
Per cent. of 1921	108.75	108.25	106.57	97.41	—	—
Operating expenses	$215,609	$214,812	$207,167	$193,664	$212,572	$120,601
Per cent. of 1917	178.78	178.12	171.78	160.58	—	—
Per cent. of 1921	101.43	101.05	97.46	91.11	—	—
Operating ratio	73.57	73.63	72.13	73.77	78.88	62.17
Net revenue from railway operations	$77,465	$76,915	$80,038	$68,855	$56,922	$73,370
Per cent. of 1917	105.58	104.83	109.09	93.85	—	—
Per cent. of 1921	136.09	135.12	140.61	120.96	—	—
Railway tax accruals	$21,275	$20,909	$20,365	$18,859	$15,539	$13,792
Per cent. of 1917	154.26	151.60	147.66	136.74	—	—
Per cent. of 1921	136.91	134.56	131.06	121.37	—	—
Net railway operating income	$50,314	$50,475	$54,228	$46,223	$35,947	$62,253
Per cent. of 1917	80.82	81.08	87.11	74.25	—	—
Per cent. of 1921	139.97	140.42	150.86	128.59	—	—
Traffic units (ton miles plus three times passenger miles)—thousands	22,475	21,929	21,044	18,012	17,451	20,877
Per cent. of 1917	107.65	105.04	100.80	86.28	—	—
Per cent. of 1921	128.79	125.66	120.59	103.21	—	—

The Transportation Act of 1920 provides that the railways should receive a fair return upon the aggregate value of railway property held and used for the service of transportation, such fair return being 5¾ per cent., as last fixed by the Interstate Commerce Commission under authority of the Act. Despite the movement of a record volume of traffic and continued gains in efficiency of operation, the existing rate structure, during each year since enactment of the Transportation Act, has failed to give your Company the fair return contemplated by the Act. The relationship of net railway operating income to the book value of road and equipment of lines constituting your Transportation System, has been as follows:

1921	3.36%
1922	4.29%
1923	4.81%
1924	3.99%
1925	3.77%
Average for 5 years	4.04%

Total Railway Operating Revenues for 1925, which amounted to $293,074,553.47, were the largest in the history of your Company. This was the result of the large volume of freight traffic moved over your lines, the revenue ton mileage exceeding the previous peak year of 1917 by 8.66 per cent., notwithstanding a drouth which extended over about 2,000 miles of your lines in Texas, and which materially affected the traffic moved by those lines.

Although Railway Operating Revenues showed an increase, compared with 1924, of $1,347,533, this increase was more than offset by an increase of $796,854 in operating expenses, an increase of $366,237 in taxes, and an increase of $423,695 in equipment rents, the result being a decrease in Net Railway Operating Income of $161,727. This result was materially affected by the following items of expenses, viz:

Increases in wage rates		$1,615,000
Increases in price of fuel		1,332,000
		$2,947,000
Less		
Back pay to employees included in last year's accounts	$412,000	
Decreases in prices of materials other than fuel	498,000	910,000
Net increase in wages and in prices of materials		$2,037,000
Increase in charges for depreciation and retirement of equipment, the result, principally, of equipment additions at market prices far higher than those of former years		1,168,000
Total		$3,205,000

Uninfluenced by these uncontrollable items Net Railway Operating Income would have shown an increase over 1924 of about $3,000,000.

Freight revenue for the year increased $4,952,234, a decrease on the Texas and Louisiana Lines, being more than overcome by an increase on the Pacific Lines.

The decrease in freight traffic on the Texas and Louisiana Lines was due, principally, to the severe and unprecedented drouth which extended over about 2,000 miles of the Texas Lines, curtailing the production of cotton and its by-products, and of corn, wheat, oats, and other agricultural products. It is estimated that the loss in freight revenue from this cause was about $3,500,000.

On the Pacific Lines, a decrease in shipments of citrus fruit in the first part of the year, due to frosts in the winter of 1924-5, was overcome by increased revenues from automobiles, lumber, and mineral oils, and by the summer and fall movement of products, such as grapes, lettuce, deciduous fruits, and vegetables, moving to Eastern markets in refrigerator cars, the result being an increase in freight revenue, compared with 1924, of $7,238,820. Much of this traffic moved in a few peak months of the year, severely taxing our facilities. Notwithstanding this condition, it is gratifying that, by intensive use of available rolling stock, we were able to handle the traffic without serious car shortage, and with the usual dispatch. With the exception of the decrease noted in the movement of citrus fruit, freight traffic generally showed a gratifying improvement, which, from present indications, will continue through 1926.

Passenger revenue decreased $2,717,315. On the Texas and Louisiana Lines the decrease amounted to about $1,000,000, all of which represents a loss in local traffic, due to reduction in travel resulting from the unfavorable crop and business conditions caused by the drouth in Texas hereinbefore mentioned, and to increased automobile competition. On the Pacific Lines, a decrease of approximately $2,800,000, due to increased use of automobiles (both commercial and private) and to an unusual winter travel to Florida, temporarily diverting business which otherwise would have gone to California, was partially offset by an increase of about $1,000,000, due to an increase in summer excursion travel and increased travel to conventions and local celebrations.

The decrease of $1,183,621 in Mail and Express Revenues is all in Express earnings, and is the result, principally, of the 10 per cent. reduction in rates made by the Interstate Commerce Commission in June, 1924, and to an adjustment of class rates made by the Commission, effective May 1, 1925, both of which affected particularly the Inter-mountain and Pacific Coast territories:

Maintenance of Way and Structures decreased $2,136,021, or 5.06 per cent. The property, however, was maintained quite up to your Company's usual high standard, as will be seen by reference to the following table giving the principal items of material used in repairs and renewals during the past four years:

MATERIAL USED IN REPAIRS AND RENEWALS

	1925	1924	1923	1922
New steel rail, track miles	343.62	401.03	453.37	286.16
Ties, number	4,762,507	3,969,255	3,952,581	4,022,549
Ties, number per mile	251	222	244	251
Tie-plates, number	5,472,752	4,730,991	5,093,818	3,866,090
Piling, lineal feet	358,330	378,742	611,528	341,416
Lumber, feet, b. m.	33,426,468	25,339,077	21,417,664	22,958,492

Maintenance of Equipment decreased $1,048,247.37, or 2.09 per cent.

Transportation expenses increased $3,151,742, or 3.04 per cent. Of this increase, higher wage rates accounted for an increase of $1,434,336, and higher prices of fuel for an increase of $1,331,820, a total of $2,766,156. Except for these two uncontrollable items, transportation expenses would have shown an increase of only $385,586, or 0.37 per cent., notwithstanding the necessary increase in train and locomotive mileage required to handle an increase of about 4.38 per cent, in the ton mileage of all freight moved by your lines.

The increased price of fuel oil gave added importance to economy in the use of fuel. The constant campaign carried on for years to reduce fuel consumption in locomotives has been reflected by a gradual but large reduction in the amount of fuel used in proportion to ton mileage moved. The reduction in pounds of fuel used per 1,000 gross ton miles in 1925, under 1924, amounted to 5.00 per cent. in passenger service, and 2.18 per cent. in freight service. The value of the economy realized in 1925 compared with 1924 amounted to $725,480, and in 1925 compared with 1913 to $11,479,446. The following table shows results obtained in fuel economy in 1925 compared with the preceding two years, and with the year 1913:

LOCOMOTIVE FUEL PERFORMANCE	1925	1924	1923	1913	COMPARISON 1925 WITH 1924 %	1923 %	1913 %
Passenger Service	141.84	149.30	162.34	206.67	—5.00	—12.63	—31.37
Freight Service	129.23	132.11	142.56	192.83	—2.18	— 9.35	—32.98

Value of Fuel Saved in	
1925 over 1924	$725,480
1925 over 1923	2,740,933
1925 over 1913	11,479,446

Miscellaneous Operations increased $503,190, or 11.97 per cent., principally in dining car and buffet service, and is largely offset by increased revenues from such service.

General Expenses increased $507,696, or 5.07 per cent., the principal items being an increase of $197,000 in pensions and an increase of $260,000 in expenses in connection with the group life insurance plan put into effect January 1, 1924. The latter increase is due, mainly, to the fact that 1924 expenses included a credit on account

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of a dividend received from the Insurance Company, no dividend being received in 1925.

Railway Tax Accruals for the year amounted to $21,275,282, an increase over 1924 of $366,237, or 1.75 per cent. The taxes for the year consumed 27.5 per cent of the Net Revenue from Railway Operations, and almost equal the total dividends paid to stockholders.

Expenses incurred during the year on account of the Federal valuation of railways, amounted to $920,608.88, making the total disbursements on this account from the time the work began to the close of the present year, $6,406,109.33.

BALANCE SHEET OF SOUTHERN PACIFIC LINES

SOUTHERN PACIFIC COMPANY AND TRANSPORTATION SYSTEM COMPANIES, COMBINED

ASSETS—DECEMBER 31, 1925, COMPARED WITH DECEMBER 31, 1924, EXCLUDING OFFSETTING ACCOUNTS

ASSETS	December 31, 1925	+ Increase — Decrease †
INVESTMENTS		
Investment in road and equipment	$1,341,287,495.40	+ $83,033,763.81
Improvements on leased railway property	244,284.72	+ 50,774.70
Sinking funds	18,746,876.67	+ 370,592.63
Deposits in lieu of mortgaged property sold	2,984,390.90	+ 2,091,333.48
Miscellaneous physical property	12,523,188.03	— 4,391,058.55
Investments in affiliated companies:		
Stocks	312,726,308.43	+ 2,413,997.56
Bonds	151,019,824.15	— 9,142,719.74
Stocks } Cost inseparable	54,503,340.15	— 2,464,693.96
Bonds }		
Notes	28,900,839.61	— 323,253.18
Advances	87,518,748.49	+ 4,557,207.05
Other investments:		
Stocks	1,592,120.01	+ 2,248.00
Bonds	2,687,978.86	— 13,747,026.52
Notes	397,205.65	— 1,223,502.45
Advances	93,752.16	— 39,190.08
Miscellaneous	1,111,377.23	+ 286,011.67
Total	$2,016,337,730.46	+ $61,474,484.42
CURRENT ASSETS		
Cash	$24,467,095.33	— $1,566,542.90
Demand loans and deposits	13,049,243.72	+ 13,036,393.13
Time drafts and deposits	20,063,291.67	+ 20,063,291.67
Special deposits	150,661.97	— 307,917.84
Loans and bills receivable	895,785.33	+ 206,883.43
Traffic and car-service balances receivable	3,439,435.30	+ 682,266.43
Net balance receivable from agents and conductors	3,574,806.78	+ 466,910.10
Miscellaneous accounts receivable	7,970,251.20	+ 477,999.86
Material and supplies	32,940,084.75	+ 2,443,265.11
Interest and dividends receivable	2,907,153.22	+ 389,543.64
Rents receivable	5,833.33	
Other current assets	224,893.82	+ 26,318.76
Total	$109,688,536.42	+ $35,918,411.39
DEFERRED ASSETS		
Working fund advances	$88,554.87	— $51,918.33
Insurance and other funds	25,360.00	
Other deferred assets	4,127,183.73	+ 255,544.86
Total	$4,241,098.60	+ $203,626.53
UNADJUSTED DEBITS		
Rents and insurance premiums paid in advance	$211,088.43	+ $55,457.98
Discount on capital stock	3,988,600.00	
Discount on funded debt	2,088,211.99	+ 367,030.05
Other unadjusted debits	10,809,868.13	— 522,495.22
Securities issued or assumed—Unpledged (a)	2,719,975.00	+ 231,550.00
Securities issued or assumed—Pledged (a)	101,250.00	— 1,500.00
Total	$17,097,768.55	— $100,007.19
Grand total	$2,147,365,134.03	+ $97,496,515.15

(a) Excluded from total assets, and a corresponding amount excluded from outstanding funded debt, in accordance with regulations of the Interstate Commerce Commission. † Inter-company interest on open accounts was discontinued as of December 31. To obtain proper comparison of 1925 with 1924, there have been eliminated from the 1924 figures all charges and credits on account of inter-company interest on open accounts, accruing during 1924, and all unearned inter-company interest on bonds and open accounts, accruing up to December 31, 1923, in arriving at increases and decreases shown in above statement.

† Inter-company interest on open accounts was discontinued as of December 31, 1924. To obtain proper comparison of 1925 with 1924, there have been eliminated from the 1924 figures all charges and credits on account of inter-company interest on open accounts, accruing during 1924, and all unearned inter-company interest on bonds and open accounts, accruing up to December 31, 1923; in arriving at increases and decreases shown in above statement.

SOUTHERN PACIFIC COMPANY AND TRANSPORTATION SYSTEM COMPANIES, COMBINED

LIABILITIES—DECEMBER 31, 1925, COMPARED WITH DECEMBER 31, 1924, EXCLUDING OFFSETTING ACCOUNTS

LIABILITIES	December 31, 1925	+ Increase — Decrease †
Southern Pacific Company—Capital Stock	$372,380,905.64	
Transportation System Companies	398,004,900.00	
Total	$770,385,805.64	
Held by the public	$374,831,415.64	— $29,290.00
Held within the system	395,554,390.00	+ 3,679,290.00
Total stock	$770,385,805.64	+ $3,650,000.00
Premium on capital stock of Southern Pacific Company	$6,304,440.00	
Total	$776,690,245.64	+ $3,650,000.00
LONG TERM DEBIT		
Funded debt unmatured:		
Southern Pacific Company	$213,932,060.00	
Transportation System Companies	515,333,215.09	
Total	$729,265,275.09	
Held by the public	$597,470,634.84	+ $66,985,217.31
Held within the system	131,794,640.25	— 1,563,310.64
Total funded debt	$729,265,275.09	+ $65,421,906.67
Nonnegotiable debt to Affiliated Companies:		
Open accounts	35,924,019.53	+ 5,975.96
Total	$765,189,294.62	+ $65,427,882.63
CURRENT LIABILITIES		
Loans and bills payable	$125,000.00	+ $75,000.00
Traffic and car-service balances payable	6,266,646.62	+ 1,152,696.25
Audited accounts and wages payable	17,208,279.33	+ 1,516,701.08
Miscellaneous accounts payable	1,417,384.69	+ 51,811.82
Interest matured unpaid	305,591.61	— 61,865.30
Interest payable January 1st	4,209,242.50	+ 257,460.00
Dividends matured unpaid	80,119.69	— 4,933.18
Dividends payable January 1st	5,585,713.58	
Funded debt matured unpaid	15,000.00	— 5,713.92
Unmatured dividends declared	250,000.00	— 350,000.00
Unmatured interest accrued	6,236,425.18	+ 936,091.40
Unmatured rents accrued	91,327.47	+ 1,307.86
Other current liabilities	880,496.03	— 600,817.28
Total	$42,671,226.70	+ $2,967,738.73
DEFERRED LIABILITIES		
Liability for provident funds	—	— $18,774.31
Other deferred liabilities	$941,996.20	— 503,320.97
Total	$941,996.20	— $522,095.28
UNADJUSTED CREDITS		
Tax liability	$8,318,128.57	— $6,243,689.00
Insurance and casualty reserves	3,301,094.56	+ $394,390.88
Accrued depreciation—Road	2,436,737.25	+ 214,900.41
Accrued depreciation—Equipment	86,022,224.75	+ 8,012,654.34
Other unadjusted credits	48,949,991.33	+ 871,539.59
Total	$149,028,176.46	+ $3,249,796.22
CORPORATE SURPLUS		
Additions to property through income and surplus	$8,323,891.06	+ $871,620.14
Funded debt retired through income and surplus	26,613,409.07	+ 769,298.78
Sinking fund reserves	15,174,537.71	+ 799,509.59
Appropriated surplus not specifically invested	3,818,177.83	
Total appropriated surplus	$53,930,015.67	+ $2,440,428.51
Profit and loss—Balance	358,914,178.74	+ 20,282,764.34
Total corporate surplus	$412,844,194.41	+ $22,723,192.85
Grand total	$2,147,365,134.03	+ $97,496,515.15

Investment Assets—Southern Pacific Lines

The following is a brief description of the investment assets of the balance sheet viz:

INVESTMENT IN TRANSPORTATION PROPERTY.....$1,341,531,780.12

Book value of investment in transportation property carried on the books of the companies comprising the Transportation System, consisting of 13,220 miles of first main track, 894 miles of additional main tracks, 5,407 miles of yard tracks and sidings, the Company's terminals at Galveston, a ten-story office building in San Francisco, 2,440 locomotives, 2,927 passenger train cars, 79,176 freight train cars, 5,883 company service cars, 23 ocean steamships, 4 river steamships, 23 ferry and car transfer boats, 11 tugs, 73 barges, and 18 other vessels, the whole forming a transcontinental system extending from New York via New Orleans and Galveston to San Francisco, California, and Portland, Oregon, with a line extending from Ogden, Utah, to San Francisco, California.

SINKING FUNDS..... 18,746,876.67

Sinking funds for the redemption of outstanding funded debt, consisting principally of $17,029,000, par value, bonds of Transportation System Companies, $1,885,000, par value, bonds of other companies, and $230,763.64 cash in hands of Trustees.

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MISCELLANEOUS PHYSICAL PROPERTY		12,523,188.03
Book value of terminal and other real estate acquired in anticipation of future use.		
INVESTMENTS IN AFFILIATED COMPANIES		634,669,060.83
Investment in securities of Transportation System Companies, which are included in the outstanding obligations as shown by the balance sheet, but which are owned within the system;		
Investments in securities of, and advances to, Solely Controlled Affiliated Companies and Jointly Controlled Affiliated Companies collateral to, but not a part of, the Transportation System, representing, principally, investments as follows:		
Electric Railways in California (full ownership), operated mileage, 899.09		
Steam Railways (full ownership), operated mileage 1,422.25		
Steam Railways (half ownership), operated mileage 741.20		
Total operated mileage of railways collateral to, but not a part of, the Transportation System 3,062.54		
Lumber Companies (full ownership), owning 23,567 acres of timber lands, 42,925 acres of other lands, and 2 saw mills, etc. Average annual production of manufactured lumber 36,000,000 feet B.M., and of railroad ties 7,000,000 feet B. M.;		
Land Companies (full ownership), owning 9,957,545 acres of lands in various states traversed by the Southern Pacific Lines; and 4,153 town lots of which 2,986 are located in various cities and towns in the State of Texas, and 1,167 in Los Angeles and vicinity, in Southern California;		
Coal Companies (full ownership), owning 22,688 acres of coal lands in Oregon and Colorado;		
Oil Companies (full ownership), owning 15,207 acres, and holding under lease 13,092 acres, of producing and prospective oil lands in Texas and Louisiana, and near Tampico, Mexico, together with ownership of mineral rights in 74,434 acres of prospective oil lands in Texas. Number of producing wells, 144. Annual production, about 2,200,000 barrels;		
Carried forward		$2,007,470,905.65
Brought forward		$2,007,470,905.65
Terminal Companies (full ownership), owning 58 acres of land in the City of Los Angeles, Calif., with improvements, including three two-story market buildings, and one seven-story, two six-story, and one four-story warehouse buildings situated on line of Southern Pacific in heart of Los Angeles wholesale district;		
Rockaway Pacific Corporation (full ownership), owning about 564 acres of land on Jamaica Bay, near Brooklyn, N. Y.;		
Southern Pacific Building Co. (full ownership), owning a nine-story office building at Houston, Texas;		
Associated Pipe Line Co. (one-third ownership), owning 561 miles of oil pipe line serving California oil fields;		
Pacific Fruit Express Co. (half ownership), operating 33,613 refrigerator cars serving Southern Pacific, Union Pacific, and Western Pacific lines; and		
Stock interest, as indicated, in following companies operating railroad terminal facilities: El Paso (Texas) Union Passenger Depot Co., 50 per cent; Ft. Worth (Texas) Union Passenger Station Co., 50 per cent; Northern Pacific Terminal Co. (Portland, Ore.) 20 per cent; Ogden (Utah) Union Railway & Depot Co., 50 per cent; Union Terminal Co. (Dallas, Tex.) 12.50 per cent.		
OTHER INVESTMENTS		8,866,824.81
Of this amount, $2,984,390.90 represents cash in hands of trustee to be applied in payment for new equipment; and the remainder represents, principally, investments in outside securities.		
Total Investment		$2,016,337,730.46

Road and Equipment—Southern Pacific Lines

The increase during the year in Investment in Road and Equipment of the Transportation System, as shown in the balance sheet, amounted to $83,033,763.81 as follows:

Expenditures for Road Extensions	$14,593,031.64	
Expenditures for Rolling Stock	14,809,306.88	
Expenditures for Floating Equipment	1,181,211.17	
Expenditures for Other Additions and Betterments	27,587,160.22	
Total Expenditures	$58,170,709.91	
Add		
Investment in road and equipment of the following lines taken into the Transportation System during the year, viz:		
San Antonio and Aransas Pass Ry. Co. taken into the System May 1, 1925	$26,446,596.11	
Franklin and Abbeville Ry. Co.—not heretofore dealt with as a Transportation System Company	355,886.21	26,802,482.32
		$84,973,192.23
Deduct		
Property retired, equipment vacated, and other adjustments		1,939,428.42
Net increase in Investment in Road and Equipment		$83,033,763.81

The following table shows the number of units of each class of rolling stock owned at December 31, 1925, and at December 31, 1924, and the number of units of each class added and retired during year:

CLASS	OWNED DEC. 31, 1925	OWNED DEC. 31, 1924	CHANGES DURING THE YEAR Added*	Retired
Locomotives	2,440	2,346	140	46
Passenger-train cars	2,927	2,933	158	164
Freight-train cars	79,170	73,463	9,104	3,397
Work equipment	5,883	5,569	669	355

* Includes 91 locomotives, 84 passenger-train cars, 2,219 freight-train cars, and 197 units of company service equipment acquired with San Antonio & Aransas Pass Railway and Franklin & Abbeville Railway taken into System during the year.

To adequately handle the heavy traffic expected, and to avoid the contingency of loss to shippers by possible car shortage during the peak months, the Pacific Fruit Express Company (owned one-half by your Company and one-half by Union Pacific Railroad Company) has purchased 5,000 refrigerator cars at an approximate cost of $16,000,000, which will be available for the peak traffic next Fall. Your Company is also adding to its own equipment, by construction at Company shops, or by purchase from outside builders, rolling stock as follows:

	Company Shops	Outside Builders	Total
Locomotives	25	23	48
Passenger-train cars	--	61	61
Freight-train cars	1,320	1,600	2,920
Company service equipment	2	9	11

The estimated cost of this equipment is $12,500,000.

Including the Southern Pacific's one-half of the Pacific Fruit Express equipment, the total estimated cost of rolling stock, in addition to that completed and placed in service during the year 1925, amounts to $20,500,000.

The new ocean-going freight steamship, the "El Oceano," mentioned in last year's report, was placed in service in May 1925. The ocean-going passenger and freight steamship, the "Bienville," which was partially destroyed by fire, as mentioned in last year's report, was converted into a freight steamship, rechristened the "El Coston," and placed in service in August, 1925.

Capital Stock—Southern Pacific Lines

The decrease during the year in capital stocks of Southern Pacific Company and Transportation System Companies *held by the public* amounted to $29,290.00, as follows:

Capital stocks of Transportation System Companies acquired from the public during the year	$43,700.00	
Less Stock of San Antonio and Aransas Pass Railway Company in the hands of the public on May 1, 1925, when such company was taken into the system	14,410.00	
Decrease in capital stocks held by the public		$29,290.00

Funded Debt—Southern Pacific Lines

The increase during the year in funded debt of Southern Pacific Company and Transportation System Companies *held by the public* amounted to $66,985,217.31, as follows:

Central Pacific Railway Company Thirty-Five Year Guaranteed Five Per Cent. Gold Bonds, issued to provide for the construction of new lines, and for additions and betterments to existing lines	$40,000,000.00
Southern Pacific Company Four One-Half Per Cent. Equipment Trust Certificates, Series H, issued to provide for the construction and acquisition of new rolling stock	10,491,000.00
Los Angeles Public Market Company First Mortgage and Collateral Trust Six Per Cent. Bonds, which are a lien on the property of the Los Angeles Public Market Company taken over by Southern Pacific Company during the year	789,500.00

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Southern Pacific Railroad Company First Refunding Mortgage Four Per Cent. Bonds owned by the Southern Pacific Company sold to the public during the year to reimburse the treasury, in part, for funds previously used for the construction of new lines, and for additions and betterments ..	6,425,500.00
San Antonio and Aransas Pass Railway Company First Mortgage Four Per Cent. Bonds in the hands of the public on May 1, 1925, when such company was taken into the system	13,379,000.00
	$71,085,000.00
Less Funded debt held by the public, retired during the year	4,099,782.69
Increase in funded debt held by the public	$66,985,217.31

Balance Sheet and Income Account of Solely Controlled Affiliated Companies

Below will be found a condensed balance sheet as of December 31, 1925, and a condensed income account for the year 1925, of all separately operated Solely Controlled Affiliated Companies, combined:

	BALANCE SHEET	Dec. 31, 1925
	ASSETS	
1.	Property investment	$326,341,031.17
2	Sinking funds	238,673.14
3.	Investments in affiliated companies—Stocks	337,838.64
4.	Investments in affiliated companies—Bonds	418,950.00
5.	Investments in affiliated companies—Advances	29,073,989.89
6.	Other investments	15,283,603.56
7.	Cash	1,527,440.76
8.	Accounts receivable	3,069,425.19
9.	Material and supplies	5,705,330.33
10.	Merchandise	1,095,355.27
11.	Deferred assets	2,527,894.49
12.	Discount on securities	11,506,037.78
13.	Other unadjusted debits	2,347,273.37
14.	Grand total	$399,472,843.53
	LIABILITIES	
15.	Capital stock	*$151,345,768.00
16.	Premium on capital stock	235,151.75
17.	Funded debt:	
	(a) Held by the public $30,582,000.00	
	(b) Held within the system 31,928,000.00	
	(c) Total	62,510,000.00
18.	Non-negotiable debt to affiliated companies	62,558,409.97
19.	Current liabilities	3,884,456.62
20.	Deferred liabilities	606,875.09
21.	Accrued depreciation	11,697,302.19
22.	Reserve for amortization of property investment	8,337,555.13
23.	Other unadjusted credits	131,864,749.35
25.	Additions to property through income and surplus	$858,583.11
25.	Additions to property through income and surplus	$858,583.11
26.	Sinking fund reserves	274,346.52
27.	Appropriated surplus not specifically invested	700,000.00
28.	Profit and loss—Balance	†*35,400,354.20*
29.	Total corporate surplus	†*$33,567,424.57*
30.	Grand total	$399,472,843.53

	INCOME ACCOUNT	Year Ended Dec. 31, 1925
31.	Operating revenues	$35,717,975.96
32.	Operating expenses (including depreciation)	28,002,016.89
33.	Net revenues from operations	$7,715,959.07
34.	Taxes	2,704,431.36
35.	Uncollectible railway revenues	521.43
36.	Equipment and joint facility rents—Net	259,375.28
37.	Net operating income	$4,751,631.00
38.	Non-operating income	1,562,957.16
39.	Gross income	$6,314,588.16
40.	Interest on funded debt	$2,988,567.45
41.	Other deductions from gross income	1,067,114.04
42.	Total deductions	$4,055,681.49
43.	Net income	$2,258,906.67
44.	Income applied to sinking and other reserve funds	$26,875.83
45.	Income balance transferred to credit of profit and loss	$2,232,030.84

* Of the amount of outstanding capital stock shown above all but $54,200 is owned within the system. † Debit.

Claim for Closing Colorado River Break

By sanction of Act of Congress, your Company has brought suit in the Court of Claims Washington D. C., to enforce its claim against the Government of the United States for $1,113,677.42 for expenditures incurred during the twelve months beginning December 1, 1906, in accomplishing, at the instance of President Roosevelt, the closing of the break in the Colorado River, which, if not closed, would have resulted in permanent disaster by floods to the property and people of the Imperial Valley.

The Act authorizing the Court of Claims to ascertain the costs, cites that

> "At the request of President Roosevelt, and under the stress of great emergency, from December 1, 1906, to November 30, 1907, the Southern Pacific Company closed and controlled the break in the Colorado River and thereby prevented the overflow and destruction of 1,214,000 acres of irrigable land in the Imperial Valley in Southern California, and saved to the Government the Laguna Dam and the Yuma reclamation project connected therewith in Arizona, as well as thousands of acres of other Government land along the Colorado River."

It is hoped that trial and decision upon the merits of the case will not be long delayed.

Purchase of Minority Interest in Houston & Texas Central Railroad Company Capital Stock

On page 26 of last year's annual report mention was made of the delivery by your Company to the plaintiffs in the "Bogert Suit," pursuant to final decree of the Court, entered December 20, 1924, of 24,219 shares of the Capital Stock of the Houston & Texas Central Railroad Company. Subsequently, negotiations were entered into between the Committee of Minority Stockholders and your Company which resulted in the purchase of said 24,219 shares by your Company on January 20, 1926.

Construction of Additional Main Line in Arizona

On page 25 of last year's annual report, mention was made of certain new lines to be constructed by the Arizona Eastern Railroad Company which, together with the lines of the El Paso & Southwestern, will serve the purpose of a second track between Dome, Arizona, and El Paso, Texas. Of the lines mentioned, the line from Picacho to Chandler, Arizona, has all been completed except the bridge over the Gila River which is rapidly nearing completion; and the branch line to Florence, Arizona, was opened for operation December 1, 1925. On the line from Hassayampa west to Welton, Arizona, all but 20 miles of the grading has been completed and 19.7 miles of track has been laid; and of 18.01 miles of second track to be constructed by the Southern Pacific between Welton and Dome, 10.13 miles have been completed and the grading for the remainder is about completed. It is expected that this work, including the rehabilitation of the existing line between Chandler and Hassayampa, will be completed and in operation early in July, 1926.

Double Tracking Central Pacific Ogden Route

Work during the year on double tracking the Central Pacific was confined to the completion of a gap of 17.74 miles between Emigrant Gap and Andover, California, in the line over the Sierra Nevada Mountains where because of frequent train movements, the benefit of double track will be greatest. This work, which was completed during the year, includes the new Summit tunnel, 10,320 feet in length, which is the longest tunnel on Southern Pacific Lines.

The completion of this work gives us continuous double track from San Francisco over the Sierra Nevada Mountains to Vista, Nevada, a distance of about 250 miles. East of Vista, including the Southern Pacific-Western Pacific joint track between Alazon and Weso, Nevada, there is in operation about 290 miles of double track, which includes all the heavy grades and congested points between Vista and Ogden, so that we now have in operation an aggregate of about 540 miles of double track between San Francisco and Ogden, or for about 70 per cent of the distance between those points.

Natron Cut-Off

Completion of the 108 mile gap in the Natron Cut-Off, referred to on page 24 of the 1923 annual report, is expected in the summer of 1926. Including 47.35 miles of the line completed during the year there had been completed up to the close of the year 69.55 miles, from Kirk north to Abernethy (which is three miles north of the summit of the Cascade Range), of which 66.37 miles are in operation; also 22.86 miles from near Oakridge south to near Fields, of which 6.07 miles are in operation. The distance between the two ends of the completed track is 15.37 miles.

The southerly portion of this line between Grass Lake and Weed, California, which is the junction with the present Portland route, was a logging road when acquired 20 years ago and is constructed with 3.75 per cent. maximum grades and 15 degrees maximum curvature. As such a line would interfere with the safe and economical operation of the Cut-Off, permission was received October 7, 1925, from the Interstate Commerce Commission to replace this part of the route by constructing a line with reasonable gradients and curvature. Construction of this line change was commenced October 20, 1925, and is expected to be completed by the time the remainder of the route is ready for through traffic. This line change will be 23.76 miles in length, will save 4.73 miles in distance over the present line, and will have 1.4 per cent. maximum grades. It will also have 3,540 degrees less curvature, will

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substitute maximum curve of 8 degrees for the present maximum of 15 degrees, and will have 713 feet less vertical rise and fall. The cost is estimated at $3,656,000.

Proposed New Lines in Southern Oregon and Northern California

The completion of the Natron Cut-Off will consummate the Company's plan of long standing for a new low grade through route between San Francisco and Portland. For the further development of the country lying generally to the east of the Cut-Off, including a large acreage of valuable timber in Southern Oregon and Northeastern California, and to provide a new through route between the Willamette Valley, in Oregon, and points east of Ogden, Utah, appreciation has been made to the Interstate Commerce Commission for authority to construct and/or to acquire new lines as follows, viz:

1. Acquisition of joint stock interest in the Oregon California & Eastern Railway Company. This company has in operation a line, 40 miles in length, extending from Klamath Falls to Sprague River, Oregon, and proposes, with the concurrence of your Company, to construct such extensions as may be necessary to serve timber properties lying to the east of its present terminus at Sprague River;
2. Acquisition of the outstanding securities of the Nevada-California-Oregon Railway Company which owns a narrow gauge line, 154 miles in length, extending from Wendel, California, on the Fernley Branch of your Company's Salt Lake Division, in a general northerly direction through Alturas, California, to Lakeview, Oregon. It is proposed to standard gauge this line and thus make it more valuable as a feeder to the main line through the free interchange of standard gauge equipment;
3. Construction of a line from Klamath Falls, Oregon, to Cornell, California, 36 miles in length, to serve agricultural territory that will be tributary to the Natron Cut-Off; and a further extension of this line from Cornell to Alturas, California, about 63 miles, where a connection will be made with the Nevada-California-Oregon Railway.

At the present time traffic between Oregon and Nevada must pass through California over the heavy grades of the Siskiyou and Sierra Nevada Mountains. The opening of the Natron Cut-Off, the acquisition of the Nevada-California-Oregon Railway, and the construction of the line from Klamath Falls, Oregon, to Alturas, California, will provide a new through route which will avoid these mountain ranges and shorten the distance between the Willamette Valley and the Ogden gateway by about 236 miles. The carrying out of this plan, which it is estimated will involve the expenditure of about $15,000,000, will yield a substantial and increasingly large return to your company from the development of new traffic; and will be further justified by economies in operation made possible by a saving of over two hundred miles in distance for through traffic between Oregon and points east of Ogden. It will also defer for many years the necessity of double tracking the single track line south of Weed, California, which involves difficult construction around Mount Shasta and through the Sacramento River Canyon.

The Interstate Commerce Commission now has our application under consideration, but the situation has been complicated by an application of the Oregon Trunk Railway Company for authority to extend its line from Bend, Oregon, south to Klamath Falls, a distance of 174 miles, to serve territory that would be adequately and more efficiently served by the plan of your Company.

Acquisition of Control of the San Antonio & Aransas Pass Railway Company

On December 6, 1924, the Southern Pacific Company and the Galveston, Harrisburg & San Antonio Railway Company (a solely controlled subsidiary of the Southern Pacific Company) filed a joint application with the Interstate Commerce Commission for authority to acquire control (the former by stock ownership and the latter by lease) of the San Antonio & Aransas Pass Railway Company owning 725 miles of line in the state of Texas, extending from Waco on the north, Kerrville on the west, and Houston on the east to Falfurrias and Corpus Christi on the south. The Commission, by an order dated March 25, 1925, approved such application, and accordingly the Southern Pacific Company, on April 8, 1925, acquired control of the capital stock of the San Antonio & Aransas Pass Railway Company; and the Galveston, Harrisburg & San Antonio Railway Company, on May 1, 1925, acquired control of the property of said company by lease.

Prior to 1903 your Company had acquired control of the capital stock of the San Antonio & Aransas Pass Railway Company and had guaranteed the principal and interest of $17,544,000. of the latter's First Mortgage Four Per Cent. Bonds. By a decree of Court entered December 14, 1903, your company was compelled to divest itself of its stock control, but its liability under its guaranty of the principal and interest of the bonds has continued, and at the time of making the application to the Commission there was due to your company the sum of $9,263,011.75 for interest paid under the guaranty, plus interest thereon amounting to $4,823,771.16, or a total of $14,086,782.91.

It is expected that the annual saving in administration and operating expenses, and other economies which will result from the operation of the San Antonio & Aransas Pass as a part of the Southern Pacific Transportation System, will about equal the annual interest payable under the guaranty; that the use of Southern Pacific equipment and other facilities will improve the service rendered to the patrons of the line; and that the greater development of the territory tributary to the line, which will result from the unification, will furnish your Company with profitable traffic.

Proposed Extension of San Antonio & Aransas Pass Into Rio Grande Valley

Since the acquisition of control by the Southern Pacific Company, the San Antonio & Aransas Pass has applied to the Interstate Commerce Commission for authority to construct an extension, about 85 miles in length, beginning at the present terminus of the Falfurrias Branch and extending in a general southerly direction to the international boundary line between the United States and Mexico; also a branch line beginning at the City of Edinburg, Texas on such proposed extension, and extending thence in a general southeasterly direction to Harlingen, Texas, a distance of about 35 miles. The Commission has not yet rendered its decision.

Acquisition of Other Lines

With the approval of the Interstate Commerce Commission your Company, as of June 30, 1925, acquired the capital stock of the Holton Interurban Railway Company which owns a line in the Imperial Valley extending from El Centro, California, on the line of the Southern Pacific, to Holtville, California, a distance of 11 miles; and on October 16, 1925, leased, for a term of 99 years, the line of the Lake Tahoe Railway & Transportation Company, extending from Truckee, California, to the pleasure resort at Lake Tahoe, a distance of 16.5 miles. It is expected that these lines will yield a substantial and justifying amount of profitable traffic.

Oregon & California Railroad Land Grant Controversy

The United States District Court for Oregon has rendered a decision in the accounting suit brought in 1917 by the United States, seeking to offset against the compensation of $2.50 per acre due the Company for unsold lands, moneys received by the Company in excess of $2.50 per acre from past sales, leases, and otherwise, as well as taxes levied since the forfeiture decision in 1913 and voluntarily paid by the Federal Government to the State of Oregon.

On November 10, 1925, the Court approved of a form of decree to be entered in the case under which the Oregon & California Railroad Company will recover approximately $3,819,717.86, of which $1,723,470.56 will be paid to the Railroad Company and the remaining $2,096,,247.30 paid to the Central Union Trust Company of New York, Trustee, under Oregon & California Railroad Company's First Mortgage of July 1, 1887; such recovery, however, to be subject to certain adjustments mentioned in the proposed form of decree. The decree has not yet been entered pending application to be made by the Railroad Company for the inclusion in the amount to be recovered by it under said decree of certain items not now included therein.

Southern Pacific Railroad Company of Mexico

On the 102.78 mile gap in the main line between Tepic and La Quemada, construction work has proceeded diligently, there having been completed during the year 64.73 miles of track, making a total of 81.81 miles of track completed to December 31, 1925. Of the 20.97 miles remaining to be completed at the close of the year 6.96 miles of grading had been completed ready for ties and rail, and the grading of 9.47 additional miles was in progress. Unexpected formation encountered in tunnel excavation has made it necessary to increase the amount of concrete tunnel lining, and this, together with slides which occurred during the tropical rainy weather, has delayed the work. It is now expected, however, to have the line completed and ballasted by January, 1927.

Change in Organization

Mr. Julius Kruttschnitt, on April 9, 1925, after forty-seven years of continuous service with the Southern Pacific Lines, during the last twelve years of which he was Chairman of the Executive

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Committee of your Company, having reached the age of retirement under the Company's rules, announced his intention to retire from active service on May 31, 1925. The undersigned was selected to succeed Mr. Kruttschnitt as Chairman of the Executive Committee, and thereafter the Board of Directors, in accordance with a plan worked out by the Executive Committee, amended the By-Laws of the Company, effective June 1, 1925, so as to provide.

1. That the Chairman of the Executive Committee shall preside at all meetings of the Board of Directors and of the Executive Committee, and shall have general control of the Company's business and the management of its financial affairs.

2. That the authority of the President shall be extended so that, under the control of the Executive Committee, he shall have direct charge of all the properties of your Company other than the Texas and Louisiana Lines which, as heretofore, shall continue their operations under their separate organization as an integral part of the transportation system of your Company. The President's headquarters to continue as at present in San Francisco, California.

3. That there shall be created the office of Vice Chairman, and that the occupant thereof, under the direction of the Chairman, shall have charge of the general office of the Company in New York City; shall be the medium of communication between the President and the Executive Committee; and, in the absence of the Chairman, shall exercise the powers and perform the duties of the Chairman.

4. That there shall be created the office of Executive Vice President, with headquarters in San Francisco, California, and that the occupant thereof, under the direction of the President, shall have immediate charge of the management, operation, and traffic of the lines west of Ogden, Utah, and Tucumcari, New Mexico; and, in the absence of the President may exercise the powers and perform the duties of the President.

5. That there shall be created the office of Vice President in Charge of Traffic, with headquarters in Chicago, Illinois, and that the occupant thereof, under the direction of the President, shall have charge of the solicitation and development of traffic interchanged with other companies, of the rates and divisions concerning such traffic, the agencies established off the lines of the Company for such purposes, and the relations, and the relations with other lines incident thereto.

6. That there shall be created the office of Executive Officer, with headquarters in New York, and that the occupant thereof, under the direction of the President, shall have immediate charge of the management, operation, and traffic of the Southern Pacific Steamship Lines; and shall perform such other duties as may be assigned to him.

General

The dividends for the year on the capital stocks of the Southern Pacific Company and its Transportation System Companies held by the public amounted to $22,609,649.32, as follows:

Dividends on capital stock of the Southern Pacific Company:

1½ per cent. paid April 1, 1925	$5,585,713.58
1½ per cent. paid July 1, 1925	5,585,713.58
1½ per cent. paid October 1, 1925	5,585,713.58
1½ per cent. payable January 2, 1926	5,585,713.58
Total Southern Pacific Company	$22,342,854.32
Dividends on stock of Transportation System Companies held by the public	266,795.00
Total dividend payments for the year	$22,609,649.32
The total taxes for the year amounted to	$21,275,282.02

Under the pension system put into effect January 1, 1903, there were carried on the pension rolls at the end of the year, 1,712 employes. The payments to pensioners for the year amounted to $958,035.56, equivalent to six per cent. per annum on an investment of $15,967,259.33.

It is with profound sorrow that the Board announces the death in New York, on June 15, 1925, of Mr. Julius Kruttschnitt who, as stated on page 24 hereof, had retired from the chairmanship of the Executive Committee of your Company on May 31, 1925. Mr. Kruttschnitt was in the service of your lines for forty-seven years, practically the entire period of his business career, and his name is inseparably connected with your Company.

The Board gratefully acknowledges its appreciation of the loyal and efficient services rendered by officers and employes during the year.

By order of the Board of Directors,
HENRY W. DE FOREST,
Chairman of the Executive Committee.

Thirty-First Annual Report of the Atchison, Topeka & Santa Fe Railway Company

For the Fiscal Year Ending December 31, 1925.

OFFICE OF
THE ATCHISON, TOPEKA & SANTA FE RAILWAY SYSTEM,
No. 5 Nassau Street, New York City.
MARCH 17, 1926.

To the Stockholders:

Your Directors submit the following report for the fiscal year January 1, 1925, to December 31, 1925, inclusive.

The lines comprising the Atchison System, the operations of which are embraced in this report, and the mileage in operation at the end of the year as compared with the previous year, are as follows:

	December 31, 1925	December 31, 1924
Atchison Topeka & Santa Fe Railway	9,241.48 miles	9,142.88 miles
Gulf, Colorado & Santa Fe Railway	1,908.84 miles	1,908.84 miles
Panhandle & Santa Fe Railway	917.79 miles	853.18 miles
	12,068.11 miles	11,904.90 miles

Increase during the year 163.21 miles.

The average mileage operated during the fiscal year ending December 31, 1925, was 11,954.36, being an increase of 123.55 miles over the average mileage operated during the preceding fiscal year.

The Company is also interested jointly, through ownership of stocks and bonds, in other lines aggregating 564.86 miles, namely Northwestern Pacific Railroad 514.80 miles and Sunset Railway 50.06 miles.

Income and Profit and Loss Statement

The following is a summary of the transactions of the System for the years ending December 31, 1924 and 1925:

	1924.	1925.
Operating Revenues	$235,410,951.54	$236,942,528.78
Operating Expenses	170,314,807.65	163,541,728.12
Net Operating Revenue	$65,096,143.89	$73,400,800.66
Railway Tax Accruals	17,730,961.09	17,565,042.20
Uncollectible Railway Revenues	66,084.85	71,564.25
Equipment and Joint Facility Rents	15,819.03	8,097,501.79
Net Railway Operating Income	$47,283,278.92	$53,666,692.42
Other Income	6,653,870.47	5,709,123.01
Gross Income	$53,937,149.39	$59,375,815.43
Miscellaneous Tax Accruals	53,895.92	61,826.63
Rent for Leased Roads and Other Charges	483,451.46	1,909,336.16
	$53,399,802.01	$57,404,652.64
Interest on Bonds, including accrued interest on Adjustment Bonds	11,247,995.50	11,246,718.52
Net Corporate Income (representing amount available for dividends and surplus)	$42,151,806.51	$46,157,934.12

From the net corporate income for the year the following sums have been deducted:

DIVIDENDS ON PREFERRED STOCK—		
No. 54 (2½%) paid Aug. 1, 1925	$3,104,320.00	
No. 55 (2½%) paid Feb. 1, 1926	3,104,320.00	
	$6,208,640.00	
DIVIDENDS ON COMMON STOCK—		
No. 80 (1¾%) paid June 1, 1925	$4,067,166.25	
No. 81 (1¾%) paid Sept. 1, 1925	4,067,166.25	
No. 82 (1¾%) paid Dec. 1, 1925	4,067,166.25	
No. 83 (1¾%) paid March 1, 1926	4,067,166.25	
	16,268,665.00	
California-Arizona Lines Bonds Sinking Fund	18,994.38	
S. F. & S. J. V. Ry. Co. Bonds Sinking Fund	29,041.78	
		22,525,341.16
Surplus carried to Profit and Loss		$23,632,592.96
Surplus to credit of Profit and Loss, December 31, 1924	$187,419,332.04	
Surplus appropriated for investment in physical property	$227,940.03	
Sundry Adjustments	971,698.88	
	1,199,638.91	
		186,219,693.13
Surplus to credit of Profit and Loss December 31, 1925		$209,852,286.09

"Other Income" consists of interest accrued and dividends re-

[ADVERTISEMENT]

ceived on securities owned, including United States Government securities, interest on bank balances, rents from lease of road and other property, and other miscellaneous receipts.

Capital Expenditures and Reduction of Book Values

The total charges to Capital Account, as shown by the General Balance Sheet, page 24, at December 31, 1925, aggregated $989,653,543.11 compared with $963,423,557.45 at December 31, 1924, an increase during the year of $26,229,985.66, which analyzes as follows:

Construction and acquisition of new mileage, including the acquisition of bonds and stocks of other railway companies:		
Atchison, Topeka & Santa Fe Ry.	$659,651.77	
Elkhart & Santa Fe Ry.	1,690,623.85	
Eldorado & Santa Fe Ry.	313,503.37	
Oklahoma Central R. R.	15,715.68	
Osage County & Santa Fe Ry.	2,573.37	
South Plains & Santa Fe Ry.	1,391,396.87	
Santa Fe & Los Angeles Harbor Ry.	5,536.52	
Tulsa & Santa Fe Ry.	*583,867.18*	
		$3,695,134.25
Additions and Betterments:		
Fixed Property	$20,608,398.74	
Equipment—		
Railroad Companies	*2,060,016.44*	
Santa Fe Land Improvement Co.	5,762,843.24	
Betterments to Equipment—		
Railroad Companies	296,790.39	
Santa Fe Land Improvement Co.	380,024.81	
		24,988,040.74
Investments in Terminal and Collateral Companies:		
Beaumont Wharf & Terminal Co.	$5,529.32	
Denver Union Terminal Ry. Co.	1,217.55	
El Paso Union Passenger Depot Co.	3,410.08	
Houston Belt & Terminal Ry. Co.	12,178.66	
Kansas City Terminal Ry. Co.	85.14	
Northwestern Pacific R. R. Co.	*4,750.00*	
Pacific Land Improvement Co.	*53,000.00*	
Pueblo Union Depot & R. R. Co.	6,206.33	
Santa Fe Land Improvement Co.	492,843.37	
Southwestern Lumber Co. of N. J.	*1,048,000.00*	
Sunset Ry. Co.	*10,000.00*	
Toluca Mining Co.	*30,000.00*	
Union Passenger Depot Co. of Galveston	560.68	
Union Terminal Co. of Dallas	*8,402.25*	
		632,121.12
Miscellaneous Physical Property		832,093.05
Other Investments, including Sinking Fund		1,273,236.03
Miscellaneous Items		*987,639.65*
		$29,168,743.30
Deduct: In adjustment of equipment costs incurred prior to July 1, 1907, not eliminated from Road Account in setting up separate account for equipment in December, 1921		2,938,757.64
Net increase in Capital Account during the year		$26,229,985.66

Credits in italics.

The net charge of $3,702,826.80 for "Equipment" analyzes as follows:

2,039 Freight-Train Cars	$4,921,750.05
53 Passenger-Train Cars	935,778.39
204 Miscellaneous Work Cars	770,420.98
1 Tug Boat	82,037.45
8 Miscellaneous Equipment	3,595.38
	$6,713,582.25
Less—Ledger Value of Equipment retired during the year as follows:	
66 Locomotives	$874,118.27
1,546 Freight-Train Cars	1,387,551.69
80 Passenger-Train Cars	430,446.26
258 Miscellaneous Work Cars	153,712.02
1 Tug Boat	57,586.54
3 Miscellaneous Equipment	634.68
Adjustment of charges for Locomotives received in prior year	106,705.99
	3,010,755.45
	$3,702,826.80

The additions and retirements reported above include the following conversions:

150 Freight-train cars converted to miscellaneous work cars.
7 Passenger-train cars converted to freight-train cars.
30 Passenger-train cars converted to miscellaneous work cars.
1 Miscellaneous work car converted to freight-train car.
1 Car converted from one class of miscellaneous work cars to another.

Maintenance of Equipment

Average maintenance charges, including renewals and depreciation for the years ending December 31, 1925 and 1924 were as follows:

	1925.	1924.
Per locomotive	$9,764.75	$10,605.24
Per locomotive mile	.3375	.3768
Per freight car	262.42	300.98
Per freight car mile	.0193	.0232
Per passenger car, including mail and express	2,001.23	2,173.84
Per passenger car mile	.0172	.0191

The foregoing average maintenance charges include a proportion of unlocated expenditures for Maintenance of Equipment charged to Superintendence, Shop Machinery, Injuries to Persons, Insurance, Stationery and Printing, Other Expenses, and Maintaining Joint Equipment.

Comparison of Operating Results

The following is a statement of revenues and expenses of the System for the year ending December 31, 1925, in comparison with the previous year:

	Year ending Dec. 31, 1925.	Year ending Dec. 31, 1924.	Increase or *Decrease.*
Operating Revenues:			
Freight	$174,868,230.78	$168,101,035.56	$6,767,195.22
Passenger	44,116,181.52	48,154,635.79	*4,038,454.27*
Mail, Express, and Miscellaneous	17,958,116.48	19,155,280.19	*1,197,163.71*
Total Operating Revenues	$236,942,528.78	$235,410,951.54	$1,531,577.24
Operating Expenses:			
Maintenance of Way and Structures	$34,205,079.25	$36,713,084.00	*$2,508,004.75*
Maintenance of Equipment	46,893,904.37	52,780,855.60	*5,886,951.23*
Traffic	4,760,212.98	4,460,559.96	299,653.02
Transportation—Rail Line	72,800,601.32	72,599,042.71	201,558.61
Miscellaneous Operations	184,789.62	136,350.56	48,439.06
General	5,518,571.17	5,212,236.39	306,334.78
Transportation for Investment—Cr.	*821,430.59*	*1,587,321.57*	765,890.98
Total Operating Expenses	$163,541,728.12	$170,314,807.65	*$6,773,079.53*
Net Operating Revenue	$73,400,800.66	$65,096,143.89	$8,304,656.77
Railway Tax Accruals	17,565,042.20	17,730,961.09	*165,918.89*
Uncollectible Railway Revenues	71,564.25	66,084.85	5,479.40
Railway Operating Income	$55,764,194.21	$47,299,097.95	$8,465,096.26
Equipment Rents—Net—Dr.	1,328,693.14	*551,912.27*	1,880,605.41
Joint Facility Rents—Net—Dr.	768,808.65	567,731.30	201,077.35
Net Railway Operating Income	$53,666,692.42	$47,283,278.92	$6,383,413.50

The following averages for 1925 compared with 1924 are deduced from tables set forth on pages 33 and 37.

The average tons of freight (revenue and company) per loaded car mile decreased from 21.87 to 21.72 or .69 per cent.

The average tons of freight (revenue and company) carried per freight-train mile (freight and mixed) increased from 646.70 to 670.07 or 3.61 per cent.

The average freight revenue per freight-train mile increased from $7.29 to $7.57, or 3.84 per cent.

The average passenger revenue per passenger-train mile decreased from $2.06 to $1.90, or 7.77 per cent.

The average passenger-train revenue per passenger-train mile decreased from $2.69 to $2.48, or 7.81 per cent.

The tons of freight carried one mile (revenue and company, but excluding water ton miles) increased 577,410,328 or 3.87 per cent, while miles run by freight cars (loaded and empty) in freight and mixed trains increased 58,138,109, or 5.55 per cent, and the mileage of such trains increased 57,642 or .25 per cent.

The number of passengers carried one mile decreased 100,565,966, or 6.66 per cent, while miles run by passengertrain cars (excluding work) in passenger and mixed trains increased 652,068, or .37 per cent, and the mileage of such trains decreased 184,036, or 79 per cent.

The following is a consolidated statement of the business of the System for each year during the period since January 1, 1896:

Year Ending Dec. 31	Average Miles Operated	Gross Revenues Including Income from Other Sources	Expenses Taxes, Rentals, and Other Charges	Interest on Bonds	Net Corporate Income
1896	6,445.40	$29,940,818.78	$23,404,876.92	$5,367,518.07	$1,168,423.79
1897	6,693.71	35,119,219.40	27,684,296.14	6,612,042.34	822,880.92
1898	6,957.80	40,093,294.36	31,018,607.94	7,125,884.47	1,948,801.95
1899	7,172.91	43,152,496.48	28,906,649.27	7,268,197.33	6,977,649.88
1900	7,615.95	49,925,736.16	31,254,188.65	7,575,253.33	11,096,294.18
1901	7,829.98	58,841,037.44	35,927,510.59	7,926,865.00	14,986,661.85
1902	7,905.30	61,273,440.11	37,716,687.78	9,035,140.00	14,521,612.33
1903	8,026.24	67,812,954.24	43,134,248.46	9,203,280.24	15,475,425.54
1904	8,291.92	68,188,401.66	45,489,566.40	9,573,868.32	13,124,966.94
1905	8,366.96	73,555,239.73	49,606,809.28	10,058,919.96	13,889,510.49
1906	8,840.76	85,990,123.42	55,149,858.78	11,097,145.03	19,743,119.61
1907	9,357.51	97,627,214.43	69,206,841.33	11,976,163.82	16,444,209.28
1908	9,610.90	89,824,040.35	59,296,009.61	13,173,664.48	17,354,366.26
1909	9,840.86	101,705,758.25	66,841,558.34	12,813,690.11	22,050,509.80
1910	10,129.49	109,946,754.91	76,396,926.41	12,128,877.98	21,420,950.52
1911	10,465.52	109,291,685.68	77,283,857.59	13,226,125.64	18,781,702.45
1912	10,721.84	116,699,498.83	80,750,564.74	13,940,217.42	22,008,716.67
1913	10,825.72	115,879,945.16	81,789,219.35	13,278,470.79	20,812,255.02
1914	11,012.24	116,586,345.89	81,353,187.69	12,850,771.93	22,382,386.27
1915	11,191.26	126,906,462.97	86,504,630.43	12,662,000.23	27,739,832.31
1916	11,259.31	147,768,093.67	97,281,738.96	12,364,165.51	38,122,189.20
1917	11,284.23	169,423,048.45	119,384,524.40	11,852,976.77	38,185,547.28
1918	11,458.74	191,509,795.88	151,465,171.20	11,696,191.79	28,348,432.89
1919	11,499.65	221,250,439.08	166,497,522.11	11,654,259.20	43,098,657.77
1920	11,583.68	264,091,117.86	214,440,745.41	12,015,620.67	37,634,751.78
1921	11,677.82	241,762,383.71	190,477,720.27	11,953,001.53	39,331,661.91
1922	11,700.88	233,337,607.31	187,083,381.53	11,871,255.06	34,382,370.72
1923	11,782.15	248,567,645.86	195,156,101.40	11,323,743.12	42,087,801.34
1924	11,830.81	243,294,438.12	189,894,636.11	11,247,995.50	42,151,806.51
1925	11,954.36	243,368,324.92	185,963,672.28	11,246,718.52	46,157,934.12

Capital Stock and Funded Debt

The outstanding Capital Stock on December 31, 1925, consisted of:

Common	$232,409,500.00	
Preferred	124,172,800.00	
		$356,582,300.00

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corresponding to amounts outstanding on December 31, 1924, no changes having taken place during the year.

The number of holders of the Company's capital stock at the close of the last five years and the changes in number from year to year were as follows:

	Common.		Preferred.	
	Number.	Increase for Year.	Number.	Increase for Year.
1921	39,614	3,145	22,065	698
1922	41,845	2,231	22,798	733
1923	43,508	1,663	23,610	812
1924	41,808	*1,700*	23,691	81
1925	40,242	*1,566*	22,732	*959*

Decreases in italics.

The outstanding Funded Debt of the System amounted, on December 31, 1924, to $275,933,158.50

The following changes in the Funded Debt occurred during the year:

Obligations Retired:		
S. F. & S. J. V. Ry. Co. First Mortgage 5% Bonds	$26,000.00	
Miscellaneous Bonds	300.00	
	$26,300.00	
Obligations Issued:		
California-Arizona Lines First and Refunding Mortgage 4½% Bonds	133.50	
Decrease of Funded Debt		26,166.50
Total System Funded Debt outstanding December 31, 1925		$275,906,992.00

Treasury

Neither this Company nor any of its auxiliaries has any notes or bills outstanding.

The Company held in its treasury on December 31, 1925, $39,843,582.80 cash. In addition, the Company owns $14,999,500.00 of United States Government securities, which are carried at cost of $15,124,031.95 in the general balance sheet.

Construction of New Lines

The present status of new lines under construction is as follows:

Elkhart and Santa Fe Railway.

This Company was organized to construct a line from the Kansas-Oklahoma state line near Elkhart, Kansas, southwesterly to Felt, Cimarron County, Oklahoma, a distance of 58.82 miles. This line, which was completed and placed in operation on December 1, 1925, serves a new territory with good agricultural resources but which has been entirely without railroad facilities.

Osage County and Santa Fe Railway.

Active work is to be resumed early this year on the projected portion of this line between Pawhuska, Oklahoma, and a connection with the main line of your Company near Fairfax, Oklahoma, a distance of approximately 27 miles. When completed, this line will form a cut-off for business between Kansas City and Oklahoma-Texas points.

South Plains and Santa Fe Railway.

An extension of this line to open for settlement the territory west of Lubbock, Texas, as referred to in the last annual report, was completed and turned over for operation on December 1, 1925. The new line extends from Doud, Lubbock County, Texas, to Bledsoe, near the west line of Cochran County, Texas, a distance of 64.60 miles.

Tulsa and Santa Fe Railway Co.

The property of this Company consisting of real estate and freight terminal facilities at Tulsa, Oklahoma, was conveyed to the parent Company during the year.

Santa Fe Dock and Channel Company.

The property of this Company was conveyed to The Gulf and Interstate Railway Company of Texas by deed dated December 15, 1925.

Guaranty Under Transportation Act, 1920.

Final settlement of the guaranty to your Company under the provisions of Section 209 of the Transportation Act, 1920, has been effected, the total amount allowed being $7,594,961.97. This involves a refund to the United States of $4,538.03 of amounts heretofore reported as received on account of the guaranty. Suitable adjustment to the basis of this settlement has been given effect in the accounts as stated in this report.

Taxes.

Federal and State and Local tax accruals for the year 1925 aggregate $17,565,042.20, a decrease under the year 1924 of $165,918.89. A comparison of these accruals for the two years is presented in the following table:

	1925.	1924.	Increase or *Decrease.*
Federal Taxes:			
Income and War	$6,080,432.51	$5,365,110.84	$715,321.67
Capital Stock	430,840.00	445,800.49	*14,960.49*
Stamp and License	7,335.06	1,552.76	5,782.30
Total Federal	$6,518,607.57	$5,812,464.09	$706,143.48
State and Local	11,046,434.63	11,918,497.00	*872,062.37*
Grand Total	$17,565,042.20	$17,730,961.09	*$165,918.89*

General

As will be noticed from pages 34 and 35 (of the pamphlet report) there was a well-sustained volume of freight traffic during the year just closed, notwithstanding that frost reduced the citrus fruit movement by your Company over 6,000 carloads, that drought in Kansas, Oklahoma, and Texas very greatly curtailed grain crops, and that cold wet weather in the fall cut short the cotton crop in Oklahoma and Texas. Agricultural conditions in these same states are today much more favorable than a year ago. Passenger traffic continued to show a small decline, due undoubtedly to an increased use of automobiles.

Your Company has made arrangements to establish automobile service for Indian Detours in the southwest, which will enable passengers to visit conveniently and comfortably the Indian villages and pueblos of that country, as well as see some of its beautiful mountain scenery. These detours will be coordinated with both west and east bound passenger train service.

The so-called South Plains country of West Texas, which has been well covered and well served by the lines of your Company, has shown such splendid growth and development that applications have been filed by the Ft. Worth and Denver City, the Frisco System, and the Texas, Panhandle and Gulf, an independent line, to build into that territory. The Interstate Commerce Commission is now considering the merits of these several applications. Your Company is endeavoring to furnish promptly any extensions which are required by or for the development of the country tributary to its lines.

The policy of relaying main lines with heavy rail will be continued, and about 467 miles of new 110-lb. rail and 108 miles of new 90-lb. rail will be inserted in 1926. At the close of 1925 your Company had 8,165 miles of 90-lb. or heavier rail in its main and branch lines out of a total of 13,283.78 miles owned.

As largely as possible, ties treated with preservative have been used for many years and to aid further in protecting them, tie plates have been used. The result has been a steady and gratifying decrease in the number of ties per mile required for renewal. The number thus required in 1925 was about 107 ties, compared with 115 ties in 1924 and an average of 230 ties per mile for the ten years preceding the war. As there are about 55,000,000 ties in service in all tracks maintained totaling 18,055 miles, the importance of this saving is evident.

For some years your Company has pursued the policy of making changes in cars and locomotives whenever it was found that better or more economical service could be thus obtained. While this policy has necessitated a high charge per unit for maintenance, the results have begun to show and there was a decrease of $840.49 per locomotive, $172.61 per passenger car, and $38.56 per freight car for maintenance for the year 1925 compared with 1924.

During the year 1925 the Company paid out in pensions to its retired employes $373,500.54, there being 954 pensioners on the roll December 31st, compared with $313,069.77 paid in 1924 and 819 pensioners December 31, 1924. These pensioners have an average service with the Company of 29 years. During this same year death benefits amounting to $329,985.00 were paid in 328 cases, compared with $294,595.76 in 270 cases. The average length of service of all cases in which death benefits were paid in 1925 was 14 years.

From the Income Statement on page 6, it will be observed that income available for interest and dividends was $57,404,652.64, an increase of $4,004,850.63 over 1924. This income represents a return of 5.65% on the investment. However, as the average interest rate on the indebtedness is but 4.08% and the dividend on the preferred stock but 5%, and because the Company has steadily invested in the property all surplus over a reasonable and moderate dividend on the common stock, without capitalizing this investment, net earnings after interest and the preferred dividend show 17.19% on the common stock.

There has been practically no new legislation, either Federal or State, since the passage of the Transportation Act, 1920. This has permitted the railroads to adapt themselves to conditions and to proceed with an assurance of stability which had been largely lacking much of the time prior thereto.

Your Directors acknowledge with pleasure the faithful and efficient services rendered by the officers and employees of the Company.

W. B. STOREY, *President.*

[Advertisement]

Thirty-Second Annual Report of Southern Railway Company, Year Ended December 31, 1925

RICHMOND, VA., March 13, 1926.

To the Stockholders of
Southern Railway Company:

The Board of Directors submits the following report of the affairs of the Company for the year ended December 31, 1925:

The Income Account

The year was one of sound prosperity for the entire South, a prosperity contributed to and shared by Southern Railway Company. The balance of the Company's income over fixed charges amounted to $22,579,172, equivalent to 16.31% on the common stock after providing for the dividend on the preferred stock, compared with $17,769,140, equivalent, after preferred dividend, to 12.30% on the common stock, in the preceding year. The gross operating revenue amounted to $149,313,892 in 1925 compared with $142,486,514 in 1924, an increase of $6,827,378 or 4.79%. Operating expenses increased $1,137,277 or 1.11%. The ratio of operating expenses to gross revenue was 69.53%, compared with 72.06% in the preceding year. The net income from operation remaining after the payment of operating expenses, taxes and equipment and joint facility rentals was $35,086,021, or 15.25% in excess of the corresponding figure for 1924.

Dividends were paid during the year at the rate of five per cent. on both classes of stock. On December 10, 1925, the individual rate on the common stock was raised to seven per cent. through the declaration of a quarterly dividend of 1¾% payable on February 1, 1926.

The Balance Sheet

The balance sheet (Table 3) is wholesome. The current assets, consisting of cash, United States Government securities, accounts receivable and materials, on December 31, 1925, were $9,964,836 in excess of the year before, while current liabilities were $1,682,063 less, resulting in a net increase of $11,646,899 in working capital. Again, without increasing the outstanding capital securities, there was a substantial increase in the investment account, while capital liabilities declined $3,646,200 by reason of the retirement of equipment trust obligations.

Operating Revenue

Freight.

The gross revenue on freight traffic in 1925 amounted to $106,776,762 compared with $99,842,143 in 1924, an increase of $6,934,619 or 6.95%.

The volume of revenue freight traffic was the heaviest in the Company's history, being the equivalent of moving 8,274 million tons a distance of one mile compared with 7,585 million tons in 1924 and the previous record of 8,230 million tons attained in 1920.

The average revenue per ton per mile in 1925 was 1.291c, compared with 1.316c in 1924. A comparison with the corresponding figure of 1921 provides a measure of the reductions in freight charges which have accrued to shippers since the post Federal control high level. The average revenue per ton per mile on the Southern in that year was 1.531c. Last year's average of 1.291c is a reduction of 15.68%. While this average ton mile revenue is influenced by character of traffic and distance hauled as well as by changes in rates, nevertheles it is a substantially accurate unit of comparison, and in this case indicates that the total freight charges paid to the Southern for carrying the 1925 traffic were nearly twenty million dollars less than they would have been had the average ton mile charge of 1921 obtained in 1925.

Passenger.

The gross revenue on passenger traffic in 1925 amounted to $30,951,806 compared with $31,083,146 in 1924, a decrease of $131,340, or less than one-half of one per cent. The comparative improvement in passenger business was progressive through the year, the revenue from this source during the first eight months having been below the 1924 level but above that level during the remaining four months. The tendency toward expansion of long distance travel and contraction of local travel continued, the division in this respect of passenger revenue being shown in the following figures:

	1925	1924	Increase	Decrease
Revenue from through traffic	$15,518,351	$13,631,225	$1,887,126	
Revenue from local traffic	15,433,455	17,451,921		$2,018,466

Operating Expenses

In its earlier days the Southern was unable to reap the full benefits of high tide business. Traffic expansion meant overtaxed facilities, high operating costs and poor net results. By the persistent investment of accumulated income and of such new capital as could be secured, the physical plant has been steadily improved until the Southern has today a transportation machine which, while still far from complete, is capable of being operated to serve the South efficiently, at fair rates, and with net results which promise to assure a fair return to the stockholders. The following statistics have been selected to illustrate the current progress in these respects, the comparison being with 1923, a year of gross revenues substantially equal to 1925:

The net charge against the Southern for hire of equipment in 1925 was $151,464 compared with $2,042,237 in 1923, a decrease of 93%.

The transportation expense per dollar of revenue in 1925 was 33.38% compared with 36.32c in 1923, a decrease of 8%.

The average weight of freight trains in 1925 was 1,237 tons compared with 1,138 tons in 1923, an increase of 9%.

The number of gross ton miles per freight train hour in 1925 was 16,310 compared with 14,050 in 1923, an increase of 16%.

Freight train transportation expense per thousand gross ton miles in 1925 was 65.08c compared with 83.17c in 1923, a decrease of 22%.

The number of pounds of coal consumed in freight train locomotives per thousand gross ton miles in 1925 was 190 compared with 229 in 1923, a decrease of 17%.

The number of pounds of coal consumed in passenger train locomotives per passenger car mile in 1925 was 17.2 compared with 20.2 in 1923, a decrease of 15%.

The average cost of repairs to locomotives per mile run in 1925 was 22.77c compared with 26.50c in 1923, a decrease of 14%. The average cost of repairing a freight car in 1925 per freight car mile was 1.23c compared with 1.62c in 1923, a reduction of 24%. The average cost of repairs to passenger train cars in 1925 per passenger car mile was 1.55c compared with 1.88c in 1923, a reduction of 18%.

Had these average unit costs of repairing equipment been as high in 1925 as they were in 1923 the expense account of 1925 would have been charged with $4,660,000 more than the sum with which it actually was charged for this purpose. The proportion of "bad order" cars and locomotives to the total number owned was substantially the same at the end of 1925 as at the end of 1923.

With all appreciation of the high morale of the organization, rank and file, these results could not have been secured without improvement of the plant.

Taxes.

The tax bill of the Southern for 1925 was $9,441,565, an increase of $1,738,866, or 22.57%, over 1924. Federal and state income taxes accounted for $3,148,764 of the total and for $1,152,435 of the increase, while property assessments accounted for $6,292,801 of the total and for $586,431 of the increase. The following figures illustrate the cumulative tendency of this account:

	Taxes Paid	Increase Over 1921	Per Dollar of Revenue
1921	$4,582,293	..	3.6c.
1922	5,763,689	26%	4.5c.
1923	6.994,407	53%	4.6c.
1924	7,702,699	68%	5 4c.
1925	9,441,565	106%	5.3c.

Additions to the Property

Road and Structures.

Among the important new facilities completed and placed in operation during the year the following are worthy of special mention:

The seventeen-mile low-grade cut-off line between Bulls Gap and Leadvale, Tenn., over which coal from the Virginia fields is moving toward the Asheville gateway in trains carrying twice the tonnage which could be moved over the old nine-mile longer route through Morristown.

The John Sevier yard five miles east of Knoxville, Tenn., with 46 miles of tracks and a present capacity of 2,929 cars, together with modern engine terminal and package freight transfer facilities.

The Knoxville cut-off line connecting the Harriman Junction and Middlesboro lines north and west of Knoxville with the John Sevier yard, saving 7.72 miles of haul on through freight traffic to and from the Middlesboro line, 2.78 miles on through freight traffic to and from the Chattanooga line and .40 of a mile on through freight to and from the Harriman Junction line. This traffic now moves around the City of Knoxville instead of through the congested city district as formerly.

The Spartanburg belt line which permits the movement around the City of Spartanburg, S. C., of through freight traffic which formerly had to cross busy city streets.

[ADVERTISEMENT]

A new locomotive repair shop, engine terminal and coach yard at Atlanta, Ga.

A substantial expansion of the yard and engine terminal facilities at Asheville, N. C.

Rolling Stock.

Sixty-one new locomotives, 2,750 new freight cars and fifty new passenger train cars have been contracted for since the beginning of 1926. The cost of this equipment was $8,622,000, which will be paid partly from current treasury funds and the remainder from the proceeds of sale of $6,900,000 Series "AA" 4½% equipment trust certificates dated April 1, 1926, payable in thirty equal semi-annual installments.

Industrial and Agricultural Development

Two hundred and sixty new traffic producing industries were established last year on Southern Railway System lines. Two hundred and thirty additional industrial establishments were enlarged. The outlook is favorable for a continuation of this expansion during the coming year. Many important projects are under way or in contemplation, among which may be mentioned plans for a substantial increase in the steel making capacity of the furnaces in the Birmingham district, and the production on a large scale of rayon, which is now used extensively in the South's textile factories.

The growth in manufacturing activities in the South has not been at the expense of agricultural progress. That field and orchard have kept abreast of the increasing demands of both home and distant markets may be seen from the following comparison of the volume handled by the Southern of certain commodities which reflect the activities of the farm:

	1925	1905	Increase
Grain, grain products and hay	1,995,000 tons	1,191,000 tons	68%
Cotton	745,000 "	595,000 "	25%
Fruits and vegetables	673,000 "	227,000 "	196%
Livestock	177,000 "	119,000 "	49%
Tobacco (unmanufactured)	286,000 "	99,000 "	189%
Agricultural implements	138,000 "	59,000 "	134%
Fertilizers	1,336,000 "	744,000 "	80%

Attention is invited to the chart accompanying this report, upon which are indicated the central power plants, both hydro-electric and steam, the transmission lines, the coal areas, and the power using textile machinery, in the territory served by the Southern. With this chart may be read profitably the following stimulating but just portrayal of economic conditions in the South today, which we have permission to quote from the February, 1926, business review of The American Exchange-Pacific National Bank, New York:

"The magic wand of hard work is rapidly building an empire within an empire in the South. Industry is taking its place alongside agriculture, thus rounding out an economic structure that has few equals in the world. To the visitor able to look at the new South against the background of the old, the changes that have taken place seem actually to have been wrought by magic. But the magic has been the magic of hard work applied to natural resources such as are vouch-

Table 3.—General Balance Sheet

Assets

	December 31, 1925	December 31, 1924
Investments:		
Investment in Road	$377,375,960.10	$366,491,874.53
Investment in Equipment	125,138,853.56	118,511,949.60
Total Investment in Road and Equipment	$502,514,813.66	$485,003,824.13
Funds Appropriated for Construction	.....	$7,592,968.75
Proceeds from sale of Mortgaged Property, held by Trustees for Reinvestment	$886,622.45	$4,975.00
Miscellaneous Physical Property	$1,035,873.93	$1,002,704.38
Investments in Affiliated Companies:		
Stocks	$34,910,550.73	$35,129,200.73
Bonds	24,033,970.19	24,710,970.19
Notes	3,981,117.94	4,585,116.77
Advances	2,605,057.55	3,153,937.71
Total Investments in Affiliated Companies	$65,530,696.41	$67,579,225.40
Other Investments:		
Stocks	$93,809.00	$93,808.00
Bonds	2,378,309.21	2,378,308.21
Notes	14,448.68	17,342.79
Advances for Purchase of Additional Equipment	.....	6,286,850.00
Total Other Investments	$2,486,566.89	$8,776,309.00
Total Investments	$572,454,573.34	$569,960,006.66
Current Assets:		
Cash	$15,953,169.28	$10,428,530.69
United States Government Securities	22,262,617.21	16,283,640.64
Special Deposits	2,840,286.05	2,860,410.15
Loans and Bills Receivable	21,210.05	22,268.16
Traffic and Car Service Balances Receivable	1,789,502.06	1,531,010.43
Balances due from Agents and Conductors	26,947.30	54,753.99
Miscellaneous Accounts Receivable	4 966,425.00	6,181,070.04
Material and Supplies (Table II)	10,771,543.01	11,379,189.29
Interest and Dividends Receivable	892,545.69	787,797.86
Other Current Assets	215,258.22	245,996.35
Total Current Assets	$59,739,503.87	$49,774,667.60
Deferred Assets:		
Working Fund Advances	$57,220.79	$105,715.28
Cash Securities in Insurance Fund	1,377,239.98	1,020,373.31
Cash Deposited under North Carolina Railroad Lease	175,000.00	175,000.00
Other Deferred Assets	433,580.51	212,416.73
Total Deferred Assets	$2,043,041.28	$1,513,505.32
Unadjusted Debits:		
Insurance premiums and Rents paid in Advance	$22,973.88	$2,410.62
Additions and Betterments Expenditures: Freight Claims: Foreign Mileage and Sundry Items in Suspense	4,118,082.86	4,218,132.99
Total Unadjusted Debits	$4,141,056.74	$4,220,543.61
Securities of the Company held by it: Unpledged 1925 $37,741,200.00; 1924 $36,171,200.00		
Grand Totals	$638,378,175.23	$625,468,723.19

Liabilities

	December 31, 1925	December 31, 1924
Capital Stock:		
Common	$120,000,000.00	$120,000,000.00
Preferred	60,000,000.00	60,000,000.00
Total Southern Railway Company Stock	$180,000,000.00	$180,000,000.00
Southern Ry.-Mobile & Ohio Stock Trust Certificates	$5,650,200.00	$5,650,200.00
Long Term Debt:		
Funded Debt (Table 4)	$259,213,500.00	$259,213,500.00
Equipment Trust Obligations (Table 5)	32,882,000.00	36,528,200.00
Total Long Term Debt	$292,095,500.00	$295,741,700.00
Total Capital Liabilities	$477,745,700.00	$481,391,900.00
Governmental Grants:		
Grants since July 1, 1914, in aid of Construction	$480,839.34	$225,855.34
Current Liabilities:		
Traffic and Car Service Balances Payable	$1,957,181.36	$1,620,079.11
Audited Accounts and Wages Payable	12,162,064.60	13,905,192.83
Miscellaneous Accounts Payable	1,558,369.71	2,120,127.50
Interest Matured, including interest due January 1st	2,812,861.50	2,830,032.10
Dividends Matured Unpaid	3,520.75	4,076.25
Funded Debt Matured Unpaid	24,253.80	26,651.80
Unmatured Dividends Accrued on Southern Ry.-Mobile & Ohio Stock Trust Certificates	56,502.00	56,502.00
Unmatured Interest Accrued	2,330,248.50	2,379,441.32
Unmatured Rents Accrued	214,875.00	203,975.00
Expenses Accrued not vouchered	1,775,891.04	1,514,767.71
Other Current Liabilities	1,458,105.83	1,375,092.11
Total Current Liabilities	$24,353,874.09	$26,035,937.73
Dividend Reserves	$5,100,000.00	$4,500,000.00
Deferred Liabilities:		
Sundry Deferred Liabilities	$3,161,006.10	$2,656,014.23
Unadjusted Credits:		
Taxes	$3,829,611.59	$2,011,856.58
Insurance Reserve	1,777,239.98	1,420,373.31
Operating Reserves	1,513,425.37	1,198,616.98
Depreciation accrued on:		
Rail Leased to Other Companies	155,568.54	143,269.72
Equipment Owned	27,144,013.23	25,533,934.75
Equipment Leased from Other Companies	478,940.24	533,211.56
Sundry Items	4,333,299.19	4,026,113.10
Total Unadjusted Credits	$39,232,098.14	$34,867,376.00
Corporate Surplus:		
Special Appropriations for Additions to Property since June 30, 1907	$2,976,002.42	$2,960,440.34
Profit and Loss—Balance	$85,328,655.14	$72,831,199.55
Grand Totals	$638,378,175.23	$625,468,723.19

[Advertisement]

safed to few peoples. There is hardly an enterprise known to modern industry that is not represented in the great workshop of the new South. The growth of the textile industry in the cotton states has been well advertised, but there are iron and steel mills, chemical plants, machine shops, furniture factories; there is mining—copper, iron, coal, phosphate, aluminum; there are oil wells, building stone and marble quarries; there are shipyards, lumbering, automobile and clothing factories; in fact, there is hardly a known product that is not to be had straight from the mill at some place in the South. But, with all this industrial development, the South is still predominantly agricultural. Its cotton fields, its peanuts, its potatoes, its fruits, its wheat and corn, its cattle and its forage make the South the land of the truly blessed. * * Water-power development has reached an advanced stage, many of the huge industries in Tennessee, the Carolinas, Georgia and Alabama being driven by power developed on the mountain streams which tumble over the Appalachians and the Cumberlands. Superpower is an old story in the South. For several years leading cities have drawn their light and power from systems which connect them all in a single chain. Cheap power, ample resources and an abundance of enterprise and muscular energy are the factors that are rejuvenating the South, bringing it back to the place of dominance which it once occupied. * * Real wealth consists of natural resources and the tools for utilizing them. The South has this kind of wealth and it is evident to the observer that its development has just begun."

To all officers and employees who have faithfully and efficiently performed their duties the thanks of the Board of Directors again are tendered.

Respectfully submitted, by order of the Board,
FAIRFAX HARRISON,
President.

Table 1.—Income Statement

	1925.	1924.
Operating Revenues:		
Freight	$106,776,762.61	$99,842,143.47
Passenger	30,951,806.32	31,083,146.48
Miscellaneous Passenger-Train	1,091,360.87	1,139,977.74
Mail	3,314,728.55	3,361,070.45
Express	2,596,008.71	2,616,730.50
Other Transportation	1,353,662.60	1,355,965.41
Incidental	2,306,593.31	2,239,477.33
Joint Facility	922,968.95	848,003.01
TOTAL OPERATING REVENUES	$149,313,891.92	$142,486,514.39
Operating Expenses:		
Maintenance of Way and Structures	$20,437,949.53	$19,556,826.06
Maintenance of Equipment	25,702,133.58	25,511,591.11
Traffic	2,907,511.17	2,703,532.03
Transportation	49,848,796.12	50,056,191.50
Miscellaneous Operations	1,172,412.81	1,045,479.05
General	3,871,137.59	3,888,813.24
Transportation for Investment—Credit	*127,958.92*	*87,758.57*
TOTAL OPERATING EXPENSES	$103,811,951.88	$102,674,674.42
NET REVENUE FROM OPERATIONS	$45,501,940.04	$39,811,839.97
TAXES	$9,441,564.98	$7,702,699.01
UNCOLLECTIBLE REVENUES	48,679.39	49,405.59
HIRE OF EQUIPMENT	151,464.37	748,542.46
JOINT FACILITY RENTS	774,209.90	868,473.09
TOTAL OTHER EXPENSES	$10,415,918.64	$9,369,120.15
OPERATING INCOME	$35,086,021.40	$30,442,719.82
Non-Operating Income:		
Income from Lease of Road	$64,607.74	$64,003.33
Miscellaneous Rent Income	279,311.55	282,753.97
Miscellaneous Non-Operating Physical Property	157,691.21	102,044.87
Dividend Income	2,143,277.00	1,747,377.42
Income from Funded Securities	1,846,102.01	1,370,865.83
Income from Unfunded Securities and Accounts	776,281.92	1,269,023.19
Miscellaneous Income	6,726.68	6,592.74
TOTAL NON-OPERATING INCOME	$5,273,998.11	$4,842,661.35
TOTAL GROSS INCOME	$40,360,019.51	$35,285,381.17
Deductions from Total Gross Income:		
Rent for Leased Roads	$2,786,202.77	$2,775,403.11
Miscellaneous Rents	31,314.22	31,533.64
Interest on Unfunded Debt	41,936.42	46,461.97
Miscellaneous Income Charges	189,946.16	186,648.94
TOTAL DEDUCTIONS OF THIS CLASS	$3,049,399.57	$3,040,047.66
TOTAL AVAILABLE INCOME	$37,310,619.94	$32,245,333.51
INTEREST ON FUNDED DEBT	$12,740,852.22	$12,747,775.84
INTEREST ON EQUIPMENT OBLIGATIONS	1,764,587.59	1,502,409.59
DIVIDEND ON SOUTHERN RAILWAY—MOBILE AND OHIO STOCK TRUST CERTIFICATES	226,008.00	226,008.00
TOTAL DEDUCTIONS OF THIS CLASS	$14,731,447.81	$14,476,193.43
BALANCE OF INCOME OVER CHARGES	$22,579,172.13	$17,769,140.08
RESERVE FOR DIVIDENDS ON PREFERRED STOCK	3,000,000.00	3,000,000.00
Balance Carried to Credit of Profit and Loss	**$19,579,172.13**	**$14,769,140.08**

Table 2.—Profit and Loss

Add:		
Credit Balance December 31, 1924		$72,831,199.55
Credit Balance of Income for the Year		19,579,172.13
		$92,410,371.68
Deduct:		
Dividend of 5½% on Common Stock	$6,600,000.00	
Property Retired	239,566.09	
Net Miscellaneous Debits	242,150.45	
		7,081,716.54
Credit Balance December 31, 1925		$85,328,655.14

[ADVERTISEMENT]

Railway Financial News

(*Continued from page* 1100)

their position on the board of the Chesapeake & Ohio with "full freedom to act as their judgment may direct." Mr. Bryan is further quoted as follows:

"The placing of two minority stockholders on the board does not in my opinion forecast any change of attitude of the minority toward consolidation. The two representatives who will be elected to the board, George Cole Scott and myself, will take their places without being under any obligation, expressed or implied, as to any future plans that may be made looking toward a merger.

"Having entered this contest simply and solely to prevent a merger in the first instance upon terms which were not thought to be fair to the minority stockholders, which position later was fully sustained by the Interstate Commerce Commission, I have not changed my attitude toward consolidation, and would personally greatly prefer to see the Chesapeake & Ohio continue to operate as an integral unit; but, of course, I am speaking only for myself and not for other stockholders, who may hold different ideas."

CHICAGO & NORTH WESTERN.—*New Directors.*—Ray Vandoren and John D. Caldwell have been elected directors succeeding Charles Frick and W. H. Finley.

CHICAGO, MILWAUKEE & ST. PAUL.—*Foreclosure Plea Heard at Chicago.*—A petition for a formal decree of foreclosure against the Chicago, Milwaukee & St. Paul by creditors of the company, was taken under advisement by Federal Judge James H. Wilkerson at Chicago on April 8. In addition to the plea for foreclosure the court is hearing arguments on two other major points. One is the application of the receivers for permission to pay approximately $400,000 in interest on bonds of the Chicago, Milwaukee & Gary, and the Chicago, Terre Haute & Southeastern. The other is a petition for admission into the litigation of a junior bondholders' committee which is opposing payments of the interest on the subsidiary bond issues. Edwin G. Sunderland, counsel for the Guaranty Trust Company, sought to show that the railroad had failed to meet the interest or principal of $300,000,000 in matured bond issues. A proposed decree submitted by Mr. Sunderland was among the documents taken under advisement.

Frank O. Wetmore, chairman of the board of directors of the First National Bank, testified that the Chicago, Terre Haute & Southeastern was not unloaded on the Chicago, Milwaukee & St. Paul to liquidate the assets of the defunct John R. Walsh bank. The road, he said, was sold to the St. Paul at a much lower price than its actual value.

J. T. Gillick, chief operating officer of the St. Paul, testified as to the importance and necessity of the acquisition of the Terre Haute by the St. Paul. The purchase, he said, was contemplated as far back as 1917, before the St. Paul lines were put into the hands of the receivers.

The acquisition of the Chicago, Terre Haute & Southeastern and the Chicago, Milwaukee & Gary by the St. Paul was characterized by Mark W. Potter, receiver, as a constructive procedure which gave promise of serving as an element of strength to the parent company. He stated that both should be retained by the St. Paul as they would prove very profitable within a very short time.

The submission of evidence by the St. Paul was concluded on

(*Continued on page* 1122)

Union Pacific Railroad Company, Twenty-Ninth Annual Report—Year Ended December 31, 1925

NEW YORK, N. Y., April 8, 1926.

TO THE STOCKHOLDERS OF UNION PACIFIC RAILROAD COMPANY:

The Board of Directors submits the following report of the operations and affairs of the Union Pacific Railroad Company for the calendar year ended December 31, 1925, *including* the Oregon Short Line Railroad Company, whose entire Capital Stock is owned by the Union Pacific Railroad Company, the Oregon-Washington Railroad & Navigation Company, whose entire Capital Stock (except fifteen qualifying shares held by Directors) is owned by the Oregon Short Line Railroad Company, and the Los Angeles & Salt Lake Railroad Company, whose entire Capital Stock is owned, one half each, by the Union Pacific Railroad Company and the Oregon Short Line Railroad Company. For convenience, the four companies are designated by the term "UNION PACIFIC SYSTEM."

Mileage and Income

The operated mileage at close of year and income for the calendar year 1925, compared with 1924, *after excluding all offsetting accounts between the Union Pacific Railroad Co., Oregon Short Line Railroad Co., Oregon-Washington Railroad & Navigation Co., and Los Angeles & Salt Lake Railroad Company,* were as follows:

	Calendar Year 1925.	Calendar Year 1924.	INCREASE.	DECREASE.
Operated Mileage at Close of Year.				
Miles of road	9,555.39	9,525.88	29.51	.....
Miles of additional main track	1,493.65	1,499.68	.....	6.03
Miles of yard tracks and sidings	3,732.73	3,648.16	84.57	.....
Total Mileage Operated	14,781.77	14,673.72	108.05	.....
Transportation Operations.				
Operating Revenues	$198,039,900.87	$199,035,117.76	.....	$995,216.89
Operating Expenses	138,842,479.79	141,611,098.09	.....	2,768,618.30
Revenues over Expenses	$59,197,421.08	$57,424,019.67	$1,773,401.41	.....
Taxes	13,462,881.36	14,457,715.43	.....	$994,834.07
Uncollectible Railway Revenues	15,241.29	29,681.31	.....	14,440.02
Railway Operating Incomes	$45,719,298.43	$42,936,622.93	$2,782,675.50	.....
Rents from use of joint tracks, yards, and terminal facilities	1,319,633.31	1,377,119.93	.....	$57,486.62
	$47,038,931.74	$44,313,742.86	$2,725,188.88	.....
Hire of equipment—debit balance	$4,809,333.96	$4,274,780.69	$534,553.27	.....
Rents for use of joint tracks, yards, and terminal facilities	2,190,952.32	2,125,800.77	65,151.55	.....
	$7,000,286.28	$6,400,581.46	$599,704.82	.....
Net Income from Transportation Operations	**$40,038,645.46**	**$37,913,161.40**	**$2,125,484.06**	.....
Income from Investments and Sources other than Transportation Operations.				
Dividends on stocks owned	$8,725,895.00	$8,122,395.00	$603,500.00	.....
Interest on bonds, notes, and equipment trust certificates owned	6,103,126.71	6,433,990.45	.....	$330,863.74
Interest on loans and open accounts—balance	610,413.49	396,854.96	213,558.53	.....
Rents from lease of road	121,529.81	121,531.80	.....	1.99
Miscellaneous rents	557,998.74	449,971.93	108,026.81	.....
Miscellaneous income	420,734.18	701,457.88	.....	280,723.70
Total	$16,539,697.93	$16,226,202.02	$313,495.91	.....
Total Income	$56,578,343.39	$54,139,363.42	$2,438,979.97	.....
Fixed and Other Charges.				
Interest on funded debt	$17,884,893.11	$17,855,927.12	$28,965.99	.....
Miscellaneous rents	36,568.04	108,353.53	.....	$71,785.49
Miscellaneous charges	425,821.86	421,878.12	3,943.74	.....
Total	$18,347,283.01	$18,386,158.77	.....	$38,875.76
Net Income from All Sources	**$38,231,060.38**	**$35,753,204.65**	**$2,477,855.73**	.....
DISPOSITION OF NET INCOME.				
Dividends on Stock of Union Pacific Railroad Co.:				
Preferred stock:				
2 per cent paid April 1, 1925 $1,990,870.00				
2 per cent paid October 1, 1925 1,990,870.00	$3,981,740.00	$3,981,740.00	.....	.....
Common stock:				
2½ per cent paid April 1, 1925 $5,557,290.00				
2½ per cent paid July 1, 1925 5,557,290.00				
2½ per cent paid October 1, 1925 5,557,290.00				
2½ per cent payable January 2, 1926 5,557,290.00	22,229,160.00	22,229,160.00	.....	.....
Total Dividends	$26,210,900.00	$26,210,900.00	.....	.....
Sinkilng Fund Requirements	18,681.03	8,678.99	$10,002.04	.....
Total Appropriations of Net Income	$26,229,581.03	$26,219,578.99	$10,002.04	.....
Surplus, Transferred to Profit and Loss	**$12,001,479.35**	**$9,533,625.66**	**$2,467,853.69**	.....

Operating results for year 1925 compared with year 1924:

		Calendar Year 1925.	Calendar Year 1924.	INCREASE.	DECREASE.	PER CENT.
	Average miles of road operated	9,547.76	*9,510.51	37.25	.....	.4
	OPERATING REVENUES.					
1.	Freight revenue	$150,005,741.79	$148,233,006.01	$1,772,735.78	.....	1.2
2.	Passenger revenue	31,092,455.40	32,635,301.50	.....	$1,542,846.10	4.7
3.	Mail revenue	4,411,819.27	4,613,520.33	.....	201,701.06	4.4
4.	Express revenue	3,504,867.27	4,689,567.86	.....	1,184,700.59	25.3
5.	Other passenger-train revenue	3,945,347.70	*3,779,094.58	166,253.12	.....	4.4
6.	Other train revenue	56,104.99	*37,955.89	18,149.10	.....	47.8
7.	Switching revenue	1,173,187.41	1,175,903.19	.....	2,715.78	.2
8.	Water line revenue	36,971.05	73,800.62	.....	36,829.57	49.9
9.	Other revenue	3,813,405.99	3,796,967.78	16,438.21	.....	.4
10.	Total operating revenues	$198,039,900.87	$199,035,117.76	.....	$995,216.89	.5
	OPERATING EXPENSES					
11.	Maintenance of way and structures	$27,945,376.16	$29,585,968.29	.....	$1,640,592.13	5.5
12.	Maintenance of equipment	36,691,869.40	37,153,620.04	.....	461,750.64	1.2

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		Calendar Year 1925.	Calendar Year 1924.	Increase.	Decrease	Per Cent.
13.	Total maintenance expenses	$64,637,245.56	$66,739,588.33	.....	$2,102,342.77	3.2
14.	Traffic expenses	4,101,242.59	3,884,546.85	$216,695.74	.....	5.6
15.	Transportation expenses—rail line	59,038,783.25	60,059,007.27	.....	1,020,224.02	1.7
16.	Transportation expenses—water line	51,587.04	63,968.99	.....	12,381.95	19.4
17.	Miscellaneous operations expenses	4,197,810.06	4,097,129.83	100,680.23	.....	2.5
18.	General expenses	6,853,059.33	6,835,214.33	17,845.00	.....	.3
19.	Transportation for investment—*Credit*	*37,248.04*	*68,357.51*	.....	*31,109.47*	45.5
20.	Total operating expenses	$138,842,479.79	$141,611,098.09	.....	$2,768,618.30	2.0
21.	Revenues over expenses	$59,197,421.08	$57,424,019.67	$1,773,401.41	.....	3.1
	TAXES.					
22.	State and county	$10,186,120.95	$10,387,024.49	.....	$200,903.54	1.9
23.	Federal capital stock	593,817.66	592,126.02	$1,691.64	.....	.3
24.	Federal income	2,681,727.00	3,468,221.70	.....	786,494.70	22.7
25.	All other federal	1,215.75	10,343.22	.....	9,127.47	88.2
26.	Total taxes	$13,462,881.36	$14,457,715.43	.....	$994,834.07	6.9
27.	Uncollectible railway revenues	$15,241.29	$29,681.31	.....	$14,440.02	48.7
28.	Railway operating income	$45,719,298.43	$42,936,622.93	$2,782,675.50	.....	6.5
29.	Equipment rents (debit)	4,809,333.96	4,274,780.69	534,553.27	.....	12.5
30.	Joint facility rents (debit)	871,319.01	748,680.84	122,638.17	.....	16.4
31.	Net railway operating income	$40,038,645.46	$37,913,161.40	$2,125,484.06	.....	5.6
	Per cent—Operating expenses of operating revenues	70.11	71.15	.....	1.04	1.5
	FREIGHT TRAFFIC. (*Commercial Freight only*)					
	Tons of revenue freight carried	32,770,901	31,503,788	1,267,113	.....	4.0
	Ton-miles, revenue freight	12,444,146,082	11,786,735,981	657,410,101	.....	5.6
	Average distance hauled per ton (*miles*)	379.73	374.14	5.59	.....	1.5
	Average revenue per ton-mile (*cents*)	1.188	1.233	.....	.045	3.6
	Average revenue per freight-train mile	$7.20	$6.99	$.21	.....	3.0
	PASSENGER TRAFFIC. (*Excluding Motor Car*)					
	Revenue passengers carried	4,638,102	5,120,579	.....	482,477	9.4
	Revenue passengers carried one mile	1,050,052,344	1,057,148,835	.....	7,096,491	.7
	Average distance hauled per passenger (*miles*)	226.40	206.45	19.95	.....	9.7
	Average passengers per passenger-train mile	55.98	56.69	.....	.71	1.3
	Average revenue per passenger-mile (*cents*)	2.926	3.054	.....	.128	4.2
	Average revenue per passenger-train mile, passengers only	$1.64	$1.73	.....	$.09	5.2
	Average total revenue per passenger-train mile	$2.27	$2.43	.....	$.16	6.6

Italics—Credit. *Restated.

General Balance Sheet—Assets

(Excluding all offsetting securities and accounts between the Union Pacific Railroad Co., Oregon Short Line Railroad Co., Oregon-Washington Railroad & Navigation Co., and Los Angeles & Salt Lake Railroad Co.)

		December 31, 1925	December 31, 1924	Increase	Decrease
	Investments:				
	Road and Equipment	$856,194,018.94	$846,137,843.43	$10,056,175.51	.....
	Less:				
	Receipts from improvement and equipment fund	$23,823,091.13	$23,823,091.13	.....	.....
	Appropriations from income and surplus prior to July 1, 1907, credited to this account	13,310,236.52	13,310,236.52	.....	.....
	Total	$37,133,327.65	$37,133,327.65	.....	.....
	701. Investment in road and equipment	**$809,004,515.78**	**$819,060,691.29**	**$10,056,175.51**	
702.	IMPROVEMENTS ON LEASED RAILWAY PROPERTY	$17,878.73	$9,136.71	$8,742.02	.....
704.	DEPOSITS IN LIEU OF MORTGAGED PROPERTY SOLD	392,235.68	195,243.90	196,991.78	.....
705.	MISCELLANEOUS PHYSICAL PROPERTY	2,634,408.99	2,319,434.28	314,974.71	.....
	Total	$3,044,523.40	$2,523,814.89	$520,708.51	.....
	706. Investments in affiliated companies:				
	Stocks	$20,981,719.46	$20,685,749.93	$295,969.53	.....
	Bonds, notes, and equipment trust certificates	19,528,843.11	18,478,079.58	1,050,763.53	.....
	Advances	8,692,959.81	8,735,449.80	.....	$42,489.99
	Total	$49,203,522.38	$47,899,279.31	$1,304,243.07	.....
	707. Investments in other companies:				
	Stocks	$90,694,599.93	$90,105,478.35	$589,121.58	.....
	Bonds, notes, and equipment trust certificates	71,230,686.05	79,565,211.24	.....	$8,334,525.19
	Total	$161,925,285.98	$169,670,689.59	.....	$7,745,403.61
	UNITED STATES GOVERNMENT BONDS AND NOTES	$41,607,488.75	$34,356,863.75	$6,650,625.00	.....
703.	SINKING FUNDS	$176,519.84	$170,088.28	$6,431.56	.....
	Total Investments	**$1,074,418,031.64**	**$1,063,625,251.60**	**$10,792,780.04**	
	Current Assets:				
708.	CASH	$29,031,509.31	$21,720,696.47	$7,310,812.84	.....
711.	SPECIAL DEPOSITS	84,862.11	43,702.17	41,159.94	.....
712.	LOANS AND BILLS RECEIVABLE	6,613.88	47,186.86	.....	$40,572.98
713.	TRAFFIC AND CAR SERVICE BALANCES RECEIVABLE	5,098,315.38	4,310,665.70	787,649.68	.....
714.	NET BALANCE RECEIVABLE FROM AGENTS AND CONDUCTORS	1,264,232.84	1,221,340.24	42,892.60	.....
715.	MISCELLANEOUS ACCOUNTS RECEIVABLE	4,592,806.41	4,242,768.03	350,038.38	.....
716.	MATERIAL AND SUPPLIES	16,445,844.10	19,048,220.67	.....	2,601,376.57
717.	INTEREST AND DIVIDENDS RECEIVABLE	1,910,719.44	1,723,433.84	187,285.60	.....
718.	RENTS RECEIVABLE	148,175.60	197,490.87	.....	49,315.27
719.	OTHER CURRENT ASSETS:				
	Baltimore and Ohio Railroad Co. capital stock applicable to payment of extra dividend of 1914	159,198.20	170,674.20	.....	11,476.00
	Miscellaneous items	252,319.61	224,627.95	27,691.66	.....
	Total current assets	$58,995,596.88	$52,950,807.00	$6,044,789.88	.....
	Deferred Assets:				
720.	WORKING FUND ADVANCES	$56,467.55	$103,915.14	.....	$47,447.59
722.	OTHER DEFERRED ASSETS:				
	Land contracts, as *per contra*	121,833.75	128,358.47	.....	6,524.72
	Miscellaneous items	3,667,430.60	2,908,000.38	$759,430.22	.....
	Total Deferred Assets	$3,845,731.90	$3,140,273.99	$705,457.91	.....
	Unadjusted Debits:				
723.	RENTS AND INSURANCE PREMIUMS PAID IN ADVANCE	$2,988.20	$4,441.76	.....	$1,453.56
725.	DISCOUNT ON FUNDED DEBT	1,112,110.86	1,143,809.94	.....	31,699.08
727.	OTHER UNADJUSTED DEBITS	1,233,072.54	1,784,768.46	.....	551,695.92
	Total Unadjusted Debits	$2,348,171.60	$2,933,020.16	.....	$584,848.56
	Grand Total	**$1,139,607,532.02**	**$1,122,649,352.75**	**$16,958,179.27**	

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The increase of $1,772,735.78 or 1.2% in "Freight Revenue" was due to increase of 4.7 per cent in net ton miles of revenue freight carried (including freight carried by one System company for another on which freight charges must be assessed under the Interstate Commerce Law) offset in part by a decrease of 3.6 per cent in average revenue per ton mile occasioned by fluctuations in the kinds of commodities hauled and reduction in rates on bituminous coal from Colorado and Wyoming fields to the East, effective August 4, 1925. With the exception of California citrus fruit and apples, which were damaged by freeze in December 1924, the yields of fruits (particularly California grapes), vegetables, grains and other agricultural products, in the States west of the Rocky Mountains, were larger than in the previous year, with consequent heavier movement. The larger crops in that territory and the generally improved business conditions over the country stimulated purchasing and building activities with the result that substantial increases occured in the movement of lumber, agricultural implements, automobiles, etc. There were also a marked improvement in the mining industry and a continued increase in the oil industry in Union Pacific territory with resultant increases in the transportation of ores, metals, petroleum and petroleum products, the latter occasioned by the opening of new oil fields near Paradise and Russell, Kansas, by the greater demand for gasoline for automobiles, and by the increased use of fuel oil for domestic and agricultural purposes. There was a very substantial decrease in the movement of grains and mill products from Kansas and Nebraska, because of the short 1925 wheat crop in those States and the small hold-over of 1924 corn crop for movement in 1925. Also, the movement of livestock was below normal because drouth conditions in 1924 depleted the herds and flocks and made fewer marketable animals available for shipping.

The decrease of $1,542,846.10 or 4.7% in "Passenger Revenue" was due to decrease of 4.2 per cent in average revenue per passenger mile and to decrease of .7 per cent in revenue passengers carried one mile. The decrease in average revenue per passenger mile was due partly to decrease in certain fares in the Los Angeles & Salt Lake Railroad ordered by the Interstate Commerce Commission effective March 1, 1924, and partly to popular low-rate excursions conducted in 1925. The decrease in revenue passengers carried was due principally to decline in travel in the first half of 1925 occasioned by sub-normal crops generally in 1924 in territory served by our lines, and to the continued diversion of local short-haul business to motor vehicles.

The decrease of $201,701.06 or 4.4% in "Mail Revenue" was due to publishers and others changing from storage mail to manifest freight for shipping magazines, etc., because of increase in postal rates effective April 15, 1925, and to reduction in rates on competitive mails for Northwest district to equalize with land grant rates prevailing on competing lines.

The decrease of $1,184,700.59 or 25.3% in "Express Revenue"

General Balance Sheet—Liabilities

(Excluding all offsetting securities and accounts between the Union Pacific Railroad Co., Oregon Short Line Railroad Co., Oregon-Washington Railroad & Navigation Co., and Los Angeles & Salt Lake Railroad Co.)

	December 31, 1925	December 31, 1924	Increase	Decrease
751. Capital Stock:				
Common Stock	$222,293,100.00	$222,293,100.00	.....	.....
Preferred stock	99,543,500.00	99,543,500.00	.....	.....
Total Capital Stock	$321,836,600.00	$321,836,600.00	.....	.....
755. Funded Debt	414,893,320.00	415,732,450.00	.....	$839,130.00
Total	$736,729,920.00	$737,569,050.00	.....	$839,130.00
754. Grants in Aid of Construction	$300,777.47	$152,820.53	†$147,956.94	.....
Current Liabilities:				
759. Traffic and car service balances payable	$1,839,806.88	$1,295,560.48	$544,246.40	.....
760. Audited accounts and wages payable	12,378,039.06	11,292,833.26	1,085,205.80	.....
761. Miscellaneous accounts payable:				
Due to affiliated companies	10,161,116.56	9,652,813.99	508,302.57	.....
Other accounts payable	278,888.42	201,167.83	77,720.59	.....
762. Interest matured unpaid:				
Coupons matured, but not presented	153,821.35	161,338.35	.....	$7,517.00
Coupons, and interest on registered bonds, due first proximo	5,081,874.90	5,082,083.78	.....	208.88
763. Dividends matured unpaid:				
Dividends due but uncalled for	115,380.50	116,115.50	.....	735.00
Extra dividend on common stock declared January 8, 1914, payable to stockholders of record March 2, 1914, unpaid	171,343.28	183,548.33	.....	12,205.05
Dividend on common stock payable first proximo	5,557,290.00	5,557,290.00	.....	.....
764. Funded debt matured unpaid	5,000.00	5,000.00	.....	.....
766. Unmatured interest accrued	1,688,660.75	1,693,446.73	.....	4,785.98
767. Unmatured rents accrued	480,218.24	427,826.48	52,391.76	.....
768. Other current liabilities	185,271.33	166,170.66	19,100.67	.....
Total Current Liabilities	$38,096,711.27	$35,835,195.39	$2,261,515.88	.....
Deferred Liabilities:				
770. Other deferred liabilities:				
Principal of deferred payments on land contracts, as *per contra*	$121,833.75	$128,358.47	.....	$6,524.72
Contracts for purchase of real estate	1,660,000.00	1,660,000.00	.....	.....
Miscellaneous items	7,723,795.71	7,853,465.50	.....	129,669.79
771. Tax liability	7,360,376.12	9,368,836.03	.....	2,008,459.91
Total Deferred Liabilities	$16,866,005.58	$19,010,660.00	.....	$2,144,654.42
Unadjusted Credits:				
773. Insurance reserve:				
Reserve for fire insurance	$2,028,260.32	$1,621,825.68	$406,434.64	.....
776. Reserve for depreciation	55,010,982.81	50,874,366.88	4,136,615.93	.....
778. Other unadjusted credits:				
Contingent interest	848,446.00	707,943.84	140,502.16	.....
Miscellaneous items	3,673,013.27	3,356,554.52	316,458.75	.....
Total Unadjusted Credits	$61,560,702.40	$56,560,690.92	$5,000,011.48	.....
Total Liabilities	**$853,554,116.72**	**$849,128,416.84**	**$4,425,699.88**	.....
Surplus:				
Appropriated for additions and betterments	$30,093,990.80	$29,732,252.27	†$361,738.53	.....
Reserved for depreciation of securities	34,972,570.88	34,740,468.50	232,102.38	.....
Funded debt retired through income and surplus	536,828.66	526,795.33	10,033.33	.....
Sinking fund reserves	193,383.23	176,973.49	16,409.74	.....
Total Appropriated Surplus	$65,796,773.57	$65,176,489.59	$620,283.98	.....
784. Profit and Loss—Credit Balance	**188,583,273.82**	**176,671,078.41**	**11,912,195.41**	.....
Total Surplus	$254,380,047.39	$241,847,568.00	$12,532,479.39	.....
As this consolidated balance sheets excludes all intercompany items, securities of the Los Angeles & Salt Lake Railroad Company owned by other System companies are not included. The difference between the par and face value of such securities as carried on the books of the Los Angeles & Salt Lake (less unextinguished discount on the bonds and discount charged to Profit and Loss but added back in consolidating the accounts) and the amounts at which the securities are carried on the books of the owning System companies is set up here to balance	$31,673,367.91	$31,673,367.91	.....	.....
Grand Total	**$1,139,607,532.02**	**$1,122,649,352.75**	**$16,958,179.27**	.....

† These amounts respectively represent donations made during the year by counties and municipalities and by individuals and companies in part payment for improvements, such as road crossings, drainage projects, and industry spur tracks, the cost of which was charged to "Investment in Road and Equipment."

[Advertisement]

was due to reduction in express rates effective March 1, 1925, to the diversion of express traffic, carloads and less, to movement by freight on account of improved freight service, and to the handling of milk, cream and newspapers in baggage service in 1925 instead of by express as was done in 1924.

The increase of $166,253.12 or 4.4% in "Other Passenger Train Revenue" was due principally to the handling of milk, cream and newspapers in baggage service in 1925, which business in 1924 was handled by the express company and our proportion of the earnings therefrom credited to "Express Revenue."

The decrease of $1,640,592.13 or 5.5% in "Maintenance of Way and Structures Expenses" was due principally to less necessity for repairs and renewals of buildings, signals and bridges, and to decrease in prices of materials used in repairs, principally ties. The properties were fully maintained.

The principal track materials used during the year in making renewals were as follows:

New steel rails	329.90 track miles
Second-hand steel rails	126.43 " "
Total	456.33 track miles

excluding yard tracks and sidings, equivalent to 4.5 per cent of the track miles in main track at the beginning of the year. Ties 3,002,493 (98.4 per cent treated), equivalent to 8 per cent of all ties in track at the beginning of the year. Tie plates 2,180,233 and continuous rail joints 196,142.

The decrease of $461,750.64 or 1.2% in "Maintenance of Equipment Expenses" was due to a reduction in labor costs made possible by greater effectiveness. Practically the same amount of material was used in repairs and the equipment was fully maintained.

The increase of $216,695.74 or 5.6% in "Traffic Expenses" was principally due to increase in expenditures for advertising and solicitation.

The decrease of $1,020,224.02 or 1.7% in "Transportation Expenses—Rail Line" was principally due to a further increase in average freight train load hauled and to decrease in payments for loss, damage and casualties. There were increases of 4 per cent in tons of revenue freight hauled and 5.4 per cent in freight gross ton miles, but because of an increase of 6.8 per cent in average freight train loading the tonnage was moved with 1.3 per cent less freight train miles. Notwithstanding an increase of .1 per cent in total transportation locomotive miles, there was a decrease of 5 per cent in tons of fuel consumed by locomotives which expressed in money amounted to approximately $700,000. There were increases in payments of approximately $550,000 resulting from higher wage schedules and $500,000 resulting from advance in price of locomotive fuel consumed.

The increase of $100,680.23 or 2.5% in "Miscellaneous Operations Expenses" was due principally to increase in dining car and hotel operations.

The increase of $534,553.27 or 12.5% in "Equipment Rents (Debit)" was principally due to increase in mileage payments on refrigerator and private line tank cars because of the increase in number of carloads of perishable commodities and oil and oil products handled.

The increase in **"Investment in Road and Equipment"** is made up as follows:

Extensions and Branches		$2,160,441.07
Additions and Betterments, *excluding Equipment*		7,010,549.31
Equipment		4,058,039.85
Total Increase		$13,229,030.23
From which there was deducted:		
Cost of property retired from service and not to be replaced, *charged (less salvage) to Profit and Loss in conformity with regulations of the Interstate Commerce Commission*	$622,545.42	
Cost of real estate retired	168,292.51	
Cost of equipment retired from service	2,382,016.79	
Total Deductions		3,172,854.72
Net increase in "Investment in Road and Equipment"		**$10,056,175.51**

In November 1925 construction was started on an extension of the North Platte Branch from Cottier, Wyoming, to extend northeasterly a distance of approximately 4 miles. The territory adjacent to this extension is adapted to the raising of sugar beets. The Holly Wyoming Sugar Company has contracted for the building of a 150,000 tons annual capacity beet sugar factory at the terminus.

Construction work was continued on the branch line from Rogerson, Idaho, to Wells, Nevada. The extension from Orchard to Boise, Idaho, was completed and placed in operation April 16, 1925.

Chicago & Alton

On page 16 of the report for 1922 advice was given that, Receivers having been appointed for the property of The Chicago & Alton Railroad Company on August 30, 1922, upon careful consideration of the conditions and prospects of that property, the Board of Directors of the Union Pacific Railroad Company had approved writing out of the investment account as a loss the entire cost, $8,946,781.50, of the preferred stock and $6,312,750 of the cost of the $8,417,000 face value of General Mortgage Twenty-Year Six Per Cent Bonds of the Chicago & Alton owned by the Union Pacific. An active and broad market for the Chicago & Alton preferred stock developed in 1924 and it was decided to sell the stock owned by the Union Pacific. 12,500 shares were sold in that year and the remainder, 90,931 shares, was sold during the year 1925. The proceeds from the sale of this stock, $1,557,353.30, were credited to the corporate surplus account "Reserve for Depreciation of Securities," to which account the entire cost was charged in 1922 when written off as a loss.

The Edward H. Harriman Memorial gold medal presented annually by Mrs. E. H. Harriman was awarded on November 14, 1925, by the American Museum of Safety to the Union Pacific System "For the utmost progress in safety and accident prevention during the year 1924."

[Advertisement]

Railway Financial News

(*Continued from page* 1118)

April 13, when the case was recessed to April 26. The junior bondholders will present evidence in opposition to the payment of the interest on the securities of the two roads.

Duluth & Iron Range.—1925 *Earnings.*—The annual report for 1925 shows net income of $1,403,435 as compared with $1,349,675 in 1924. Selected items from the income statement follow.

DULUTH & IRON RANGE.

	1925	1924	Increase or decrease
Railway operating revenues	6,813,655	5,960,971	825,685
Maintenance of way	1,074,677	1,156,998	—82,321
Maintenance of equipment	1,381,076	1,459,021	—77,945
Transportation	1,971,799	2,004,309	—32,510
Total operating expenses	4,730,399	4,897,606	—167,207
Operating ratio	69.43	82.16	—12.73
Net revenue from operations	2,083,256	1,063,365	1,019,891
Railway tax accruals	527,807	808,800	—280,993
Railway operating income	1,555,359	254,380	1,300,978
Net railway operating income	Not shown in report.		
Non-operating income	470,513	423,622	46,891
Gross income	2,025,871	678,002	1,347,869
Interest on funded debt	407,550	407,550	.....
Total deductions from gross income	622,437	cr. 671,673	1,294,110
Net income	1,403,435	1,349,675	53,759

Erie.—*Equipment Trust Certificates.*—Drexel & Co. have sold $2,190,000 4½ per cent equipment trust certificates, series LL, at a price to yield 4.80 per cent for all maturities. Interstate Commerce Commission approval of this issue was reported in the *Railway Age* of April 10.

Missouri-Kansas-Texas.—*New Directors.*—Harry S. Black, chairman of the United States Realty & Improvement Company, has been elected a director and it is understood will be made chairman of the board, to succeed Henry Ruhlender. C. N. Whitehead, who is expected to be the next president of the Missouri-Kansas-Texas; James I. Bush, of the Equitable Trust Company; Hunter Gary, of Kansas City, and A. W. Thompson, president of the Philadelphia Company of Pittsburgh, have been elected directors, succeeding W. Frank Carter, of St. Louis; Richard H. Swartwout, of New York; A. F. Adams and A. C. Rearick. C. A. Schaff, retiring president, will continue as a director and a member of the executive committee. The five new directors represent the Loree interests, and with the four directors elected last year, following the acquisition by the Kansas City Southern of a 25 per cent interest in the property, give the new control nine members of the total membership of 15.

Missouri Pacific.—*1925 Earnings.*—The annual report for 1925 shows net income of $7,648,209, equivalent to $10.65 a share on the 5 per cent cumulative preferred stock, dividends on which are now in arrears to the extent of about 37½ per cent. After allowance for 5 per cent dividends on the preferred stock the 1925 net income was equivalent to $4.89 a share on the common. Net income in 1924 was $6,503,217, equivalent to $9.05 a share on the

preferred, or $3.51 a share on the common, after 5 per cent for the preferred dividends. Selected items from the income statement follow:

MISSOURI PACIFIC

	1925	1924	Increase or Decrease
Average mileage operated	7,338	7,360	—22
Railway operating revenues	130,831,661	123,647,724	7,183,938
Maintenance of way	20,465,706	18,916,235	1,549,471
Maintenance of equipment	25,895,938	25,843,403	52,535
Transportation	48,307,743	46,725,525	1,582,218
Total operating expenses	102,276,500	98,466,366	3,810,134
Operating ratio	78.17	79.64	—1.47
Net revenue from operations	28,555,162	25,181,358	3,373,804
Railway tax accruals	5,266,438	4,690,480	575,958
Railway operating income	23,253,239	20,445,464	2,807,775
Hire of freight cars—Dr. Bal.	4,038,149	3,375,832	662,317
Joint facility rents—Dr. Bal.	1,329,718	1,178,937	150,781
Net railway operating income	18,013,064	15,817,584	2,195,480
Non-operating income	4,459,088	3,566,861	892,227
Gross income	22,472,152	19,384,445	3,087,707
Rent for leased roads	138,845	148,992	—10,146
Interest on funded debt	14,524,188	12,268,266	2,255,922
Total deductions from gross income	14,823,944	12,881,228	1,942,716
Net income	7,648,209	6,503,218	1,144,991

SOUTHERN.—*Equipment Trust Certificates.*—Drexel & Co. have sold at prices to yield 4.75 per cent for all maturities, $6,900,000 equipment trust certificates, series AA. Interstate Commerce Commission approval of this issue was reported in the *Railway Age* of April 3.

SOUTHERN.—*1925 Earnings.*—The annual report for 1925 shows net income, after interest and other charges, of $22,579,972, equivalent, after allowance for dividends on the preferred stock, to $16.31 a share on the common stock. Net income in 1924 was $17,769,140, equivalent to $12.30 a share on the common. See excerpts from annual report on adjoining pages.

SOUTHERN PACIFIC.—1925 *Earnings.*—The annual report of the Transportation System (Southern Pacific Co. and Transportation System Companies, combined) shows net income of $35,657,410 after taxes and charges, equivalent to $9.57 a share earned on the capital stock as compared with $35,419,903, or $10.14 a share in 1924. Including net income of $2,258,906 of the solely controlled affiliated companies, not included in the above account, the total net income amounted to $37,916,316, or $10.18 a share as compared with the total net income of $40,490,927, or $11.60 a share in 1924. See excerpts from annual report on adjoining pages.

New Executive Committee Member.—James S. Alexander, chairman of the National Bank of Commerce of New York, has been elected a member of the executive committee.

SOUTHERN PACIFIC.—*Acquisition.*—Acquisition of control of the Dayton-Goose Creek, a 25-mile line in Texas, by the purchase of its capital stock of $25,000 from R. S. Sterling for $900,000 in cash and the lease of the property to the Texas & New Orleans, has been approved by the Interstate Commerce Commission. Commissioner Eastman dissented. The majority report of Division 4 says in part:

> For the applicants it is claimed that the reasonableness of the consideration to be paid for the Dayton company's capital stock may be demonstrated by reference to its earnings, to its book value, and to our tentative valuation of its properties. By our report and order entered October 16, 1925, in Valuation Docket No. 666 we found the tentative value of the properties owned and used by the Dayton company for common carrier purposes as of December 31, 1920, to be $575,000, including $5,000 for working capital consisting of material and supplies. Our report shows the value of land wholly owned and used to be $101,076 as of the date of the valuation, and the cost of reproduction of the properties new less depreciation as of the date of valuation, with prices as of 1914, to be $386,884, a total of $487,960.15. The testimony is that our valuation adjusted to 1925 prices, plus additions and betterments from January 1, 1921, to December 31, 1925, gives a total value of $994,434. The valuation found by the Railroad Commission of Texas as of 1923, with additions and betterments from date of valuation to December 31, 1925, is given as $940,883. Using the book value as of October 31, 1925, and adding thereto increase in value of the carrier's land since date of purchase, deferred costs of construction claimed as incidental to excess maintenance cost required to produce the quality of track and roadbed now existing, and going concern value, a witness for the applicants finds the present value of the properties to be $994,743. The testimony is that the most important element of value of the railroad to the Southern Pacific is its potential value; that the railroad has been a successful business project, and that there is every indication that the prospective business and economies from the proposed unified operation will constantly increase. The evidence indicates that the Dayton company will be able to maintain and increase most of its present traffic, and that there is a possibility of further agricultural development and of considerable industrial expansion in the country along the Houston ship channel near Baytown. The rental to be paid by the T. & N. O. under the proposed lease is equal to 6 per cent per annum on the Southern Pacific's proposed investment in the stock. Nothing herein is to be construed as modifying our findings in Valuation Docket No. 666 as to the value of the Dayton company's properties.

UNION PACIFIC.—1925 *Earnings.*—The annual report for 1925 shows net income after charges of $38,231,060 equivalent after allowance for preferred dividends to $15.40 a share on the common stock. Net income in 1924 was $35,753,205 or $14.29 a share on the common. See excerpts from annual report on adjoining pages.

WABASH.—*1925 Earnings.*—The annual report for 1925 shows net income of $7,946,438, after interest and other charges, equivalent to $5.75 a share on the combined $67,742,793 preferred A stock and $65,114,064 common stock. The preferred stock is entitled to 5 per cent non-cumulative dividends and the common stock may not receive dividends at a higher rate than is paid on the preferred A. Net income in 1924 was $5,474,949, equivalent to $2.70 a share on the common stock, after allowance for the 5 per cent dividends on the preferred A and preferred B stock. Selected items from the income statement follow:

WABASH

	1925	1924	Increase or Decrease
Average mileage operated	2,524.20	2,489.93	34.27
Railway operating revenues	$69,910,301	$65,780,929	$4,129,372
Maintenance of way	$9,311,985	$9,913,565	—$601,579
Maintenance of equipment	12,348,291	11,579,914	768,377
Transportation	25,431,804	24,973,374	485,430
Total operating expenses	$51,080,424	$50,298,418	$782,006
Operating ratio	73.07	76.46	3.39
Net revenue from operations	$18,329,877	$15,482,512	$3,347,365
Railway tax accruals	3,287,580	3,036,367	251,213
Railway operating income	$15,966,973	$13,144,455	$2,822,518
Hire of freight cars Dr. Bal.	$1,881,230	$1,852,217	$29,013
Joint facility rents Dr. Bal.	1,384,049	1,184,190	199,859
Net railway operating income	$12,252,515	$9,347,780	$2,904,735
Non-operating income	770,107	530,392	239,715
Gross income	$13,022,623	$9,878,172	$3,144,450
Rent for leased roads	$361,704	$365,251	—$3,546
Interest on funded debt	4,587,596	3,953,703	633,893
Total deductions from gross income	$5,076,185	$4,403,223	$672,962
Net income	$7,946,438	$5,474,949	$2,471,489

WITCHITA FALLS, RANGER & FORT WORTH.—*Acquisition by Missouri-Kansas-Texas.*—This company, which has been in receivership for the past five years, reverted to its owners, the National City Bank of New York, on April 1 and will be sold, it is reported, to the Missouri-Kansas-Texas.

Dividends Declared

Pittsburgh & West Virginia.—1½ per cent, quarterly, payable April 30 to holders of record April 13; 1½ per cent, quarterly, payable July 31 to holders of record July 15; 1½ per cent, quarterly, payable October 30 to holders of record October 15; 1½ per cent, quarterly, payable January 31 to holders of record January 15.

Average Price of Stocks and Bonds

	April 13	Last Week	Last Year
Average price of 20 representative railway stocks	87.59	88.91	77.65
Average price of 20 representative railway bonds	95.16	94.32	89.67

Valuation Reports

The Interstate Commerce Commission has issued valuation reports finding the final value for rate-making purposes of the common-carrier property owned and used as of the respective valuation dates as follows:

Spokane & British Columbia	$722,423	1915	Final
Smoky Mountain	125,187	1915	"
Santa Fe, Raton & Eastern	201,227	1916	"
New Orleans, Natalbany & Natchez	368,769	1916	"
San Joaquin & Eastern	1,148,000	1916	"
Reading & Columbia	$2,071,083	1917	Tentative
Bellingham & Northern	2,128,000	1918	"
Chestnut Ridge	352,600	1918	"
Gallatin Valley	1,312,580	1918	"
Denver & Salt Lake	14,996,000	1919	"
Wyoming & Northwestern	3,129,154	1917	"
Norfolk & Portsmouth Belt	926,750	1916	"

Railway Officers

Executive

C. B. Milsom has been appointed assistant to the vice-president of the Missouri Pacific.

J. G. Code has been elected vice-president and secretary of the Jefferson Southwestern, with headquarters at Mt. Vernon, Ill.

F. P. Johnson, general auditor of the Missouri Pacific, with headquarters at St. Louis, Mo., has been promoted to vice-president in charge of finance and accounting, a newly created position. Mr. Johnson has also been elected a vice-president of the Gulf Coast Lines and the International-Great Northern and their subsidiary properties.

Financial, Legal and Accounting

T. M. Niven has been appointed general auditor of the Missouri Pacific, and **W. J. Wright** has been appointed assistant general auditor. **C. G. Whitworth** has been appointed general accountant.

R. C. Dunlap has been appointed treasurer of the Railroad Administration, succeeding C. L. Stryker, resigned. Mr. Dunlap has been with the Railroad Administration since 1918 and has recently been assistant treasurer.

Richard H. Hollen has been elected assistant secretary of the Jefferson Southwestern, with headquarters at Chicago, Ill. **Leonard J. Clark** has been elected treasurer, with headquarters at Philadelphia, and **George Reeder** has been elected assistant treasurer, with headquarters at Mt. Vernon, Ill.

Operating

J. Irwin has resumed his duties as superintendent of the Prince Albert division of the Canadian National, with headquarters at Prince Albert, B. C., succeeding **J. W. Crane,** who has been granted leave of absence.

Franklin D. Davis, who has been appointed general superintendent of transportation of the Western region of the Pennsylvania, with headquarters at Chicago, Ill., was born on March 21, 1885, at Baltimore, Md., and was educated at Baltomore Polytechnic Institute. He entered railway service on June 1, 1903, as a levelman on the Pennsylvania, and on March 1, 1905, was appointed rodman. He became transitman on January 15, 1906, and assistant supervisor on January 15, 1907. He was appointed supervisor on June 16, 1913, and assistant freight trainmaster on April 1, 1918. On March 1, 1920, Mr. Davis was appointed division engineer, and on July 1, 1922, superintendent of the Norfolk division. On October 24, 1923, he was transferred in the same capacity to the New York division. On October 16, 1925, Mr. Davis was appointed acting general superintendent of the New Jersey division, which position he was holding at the time of his recent appointment as general superintendent of transportation of the Western region of the Pennsylvaia.

F. D. Davis

F. D. Kelsey, superintendent of the Mesabi division of the Great Northern, with headquarters at Superior, Wis., has been transferred to the St. Cloud division, with headquarters at Minneapolis, Minn., succeeding **R. E. Landis,** transferred. **D. J. Flynn,** assistant superintendent of the Mesabi division, has been promoted to superintendent in place of Mr. Kelsey.

J. D. Scott, assistant trainmaster of the Monongahela division of the Pennsylvania, has been promoted to trainmaster of the Akron division, with headquarters at Akron, Ohio, succeeding **G. V. Cummings,** deceased. **F. R. Gerard,** assistant trainmaster of the Conemaugh division, has been promoted to passenger trainmaster of the Philadelphia division. **F. B. Robison,** acting assistant trainmaster of the E. & A. division, with headquarters at New Castle, Pa., has been promoted to assistant trainmaster, with the same headquarters.

A. J. Elder, who has been promoted to superintendent of the Sioux City & Dakota division of the Chicago, Milwaukee & St. Paul, with headquarters at Sioux City, Iowa, was born on January 8, 1892, at Pierson, Iowa, and entered railway service in April, 1907, as a telegraph operator on the Chicago, Milwaukee & St. Paul. He was promoted to train dispatcher in 1912, and in 1917 was promoted to night chief dispatcher. Mr. Elder was promoted to chief dispatcher in 1918 and held that position until 1921 when he was promoted to trainmaster of the Milwaukee terminals. He was promoted to assistant superintendent of the Twin City terminals, with headquarters at Minneapolis, Minn., in 1925, and held that position until his recent promotion to superintendent.

Traffic

G. R. Gregg, traveling freight agent of the Chicago Great Western, with headquarters at St. Louis, Mo., has been promoted to general agent, with the same headquarters.

R. J. Doss, who has been appointed general freight agent of the Atlantic Coast Line, with headquarters at Wilmington, N. C., was born on March 30, 1884, at Canton, Ga. and was later graduated from Etowah Institute. He entered railway service on September 1, 1900, as a clerk on the Atlantic, Knoxville & Northern (now a part of the Louisville & Nashville), and until January, 1904, was a telegraph operator on the same road. From January, 1904, to 1905 he was overcharge claim investigator in the office of the freight claim agent of the Southern at Washington, D. C., and from 1906 to 1908 was local agent on the Atlantic, Knoxville & Northern. From 1908 to 1913 he was in the general freight office of the Louisville & Nashville at Knoxville, Tenn., and was rate clerk for the same road at Louisville, Ky. At the latter time he became chief rate clerk in the general freight office of the Atlantic Coast Line at Savannah, Ga., which position he held until July, 1914, at which time he became chief clerk in the same office. From December, 1916, to the period of federal control, he was assistant to the general freight agent of the same road at Wilmington, N. C. During federal control he was a member of the Southern Freight Committee, United States Railroad Administration, and from May 15, 1920, until the time of his recent appointment to general freight agent, he was assistant general freight agent of the Atlantic Coast Line.

R. J. Doss

R. L. Ward has been appointed general agent, freight department, of the Chicago, Rock Island & Pacific, with head-

quarters at Chicago, succeeding **D. J. Bermingham,** who has retired.

J. D. Wright has been appointed Florida freight agent of the Georgia & Florida, with headquarters at Jacksonville, Fla., with supervision over solicitation in the state of Florida, except Lake City and points west thereof. **E. G. Fowlkes,** having resigned to engage in another line of business, the title of commercial agent at Jacksonville, Fla., has been discontinued.

Arthur Mackenzie, who has been promoted to freight traffic manager of the Chicago, Rock Island & Pacific, with headquarters at Chicago, was born at Leeds, England, and entered railway service in 1888 as a clerk in the freight department of the Grand Trunk at Toronto, Ont. He was employed by the Michigan Central in a clerical capacity in 1890 and in 1892 entered the service of the Atchison, Topeka & Santa Fe to do similar work. He was transferred to Chicago as tariff clerk in 1894 and in 1896 was employed as a record clerk in the car service department of the Cleveland, Cincinnati, Chicago & St. Louis. Mr. Mackenzie was appointed chief clerk to the division freight agent of the Lehigh Valley at Rochester, N. Y., in the same year, soon afterward returning to Chicago as chief clerk to the general agent of the St. Louis-San Francisco. He was employed as chief clerk to the assistant general freight agent of the Iowa Central in 1897, later in the same year returning to the Santa Fe as stenographer in the central freight office at Chicago. He subsequently held the positions of claim clerk, chief rate clerk, assistant chief clerk and chief clerk to the freight traffic manager. Mr. Mackenzie entered the service of the Rock Island in December, 1909, as chief clerk to the first vice-president. On December 27, 1915, he was promoted to assistant freight traffic manager, with headquarters at Chicago, and held that position until his recent promotion.

A. Mackenzie

William B. Dixon, who has been promoted to general passenger agent of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago, was born on February 5, 1871, at St. Paul, Minn., and entered railway service in February, 1888, as a stenographer on the Chicago, Milwaukee & St. Paul. He was subsequently promoted to ticket clerk and then to chief clerk to the assistant general passenger agent, later being promoted to traveling passenger agent. In June, 1902, Mr. Dixon was promoted to northwestern passenger agent, holding that position until April, 1907, when he was promoted to assistant general passenger agent, with headquarters at St. Paul, Minn. He was later transferred to Chicago where he remained until his recent promotion to general passenger agent.

L. S. Goforth, who has been promoted to general freight agent of the Missouri Pacific, with headquarters at San Antonio, Tex., was born on October 5, 1888, at Buda, Tex., and entered railway service in June, 1903, as a messenger on the International Great Western, now a part of the International-Great Northern. He later held various other clerical positions, being subsequently promoted to traveling freight agent and commercial agent. In 1918 Mr. Goforth was promoted to district freight and passenger agent, being appointed district freight agent in 1920. With the consolidation of the traffic offices of the Missouri Pacific and the International-Great Northern, in 1925, Mr. Goforth was appointed assistant general freight agent, with headquarters at San Antonio, Tex., and he held that position until his recent promotion.

George B. Haynes, who has been promoted to passenger traffic manager of the Chicago, Milwaukee & St. Paul, with headquarters at Chicago, was born on August 22, 1871, at Ainsworth, Ia., and entered railway service in March, 1891, in the traffic department of the Union Pacific. He was employed as a clerk in the office of the general western agent of the Chicago, Milwaukee & St. Paul at Omaha, Neb., in December, 1892, and in June of the following year was promoted to passenger agent. Mr. Haynes was promoted to city passenger agent in 1897 and held that position until June, 1903, when he was promoted to traveling passenger agent, with headquarters at Chicago. From October, 1907, to July 15, 1911, he served as immigration agent, on the latter date being promoted to assistant general passenger agent. Mr. Haynes was promoted to general passenger agent in March, 1913, and held that position until his recent promotion to passenger traffic manager.

Mechanical

F. M. Clark has been appointed road foreman of engines of the Charlotte Harbor & Northern, with headquarters at Arcadia, Fla.

W. H. Fetner, chief mechanical officer of the Missouri Pacific, with headquarters at St. Louis, Mo., has been appointed also chief mechanical officer of the Gulf Coast Lines and the International-Great Northern.

E. L. Bachman, assistant master mechanic of the Panhandle division of the Pennsylvania, with headquarters at Cully, Pa., has been promoted to master mechanic of the Wheeling division, with headquarters at Mingo Junction, Ohio.

T. W. McCarthy, master mechanic on the Chicago, Rock Island & Pacific, with headquarters at Cedar Rapids, Iowa, has been promoted to superintendent of motive power of the First district, with headquarters at Des Moines, Iowa, succeeding **L. A. Richardson,** who was recently promoted to general superintendent of motive power.

Engineering, Maintenance of Way and Signaling

T. J. Skillman, chief engineer maintenance of way of the Western region of the Pennsylvania, who has been promoted to the position of assistant chief engineer, system, with headquarters at Chicago, was born on November 6, 1876, at Trenton, N. J., and was graduated as a civil engineer from Princeton University in 1898. He entered railway service in March, 1899, as a rodman on the Pennsylvania, later being employed as a transitman. In December, 1902, Mr. Skillman was promoted to assistant supervisor of the Tyrone division and in August, 1905, was promoted to supervisor of the Pittsburgh division. In June, 1913, he was promoted to division engineer of the New York, Philadelphia & Norfolk and in December, 1914, was transferred to the West Jersey & Seashore. Mr. Skillman was promoted to principal assistant engineer of the Eastern Pennsylvania division in November, 1919, and held that position until March, 1920, when he was promoted to chief engineer maintenance of way of the Northwestern region, with headquarters at Chicago. He was appointed chief engineer maintenance of way of the Western region when it was formed through the consolidation of the Northwestern and the Southwestern regions, and held that position until his recent promotion.

T. J. Skillman

L. P. O. Exley has been appointed chief engineer of the Gulf, Mobile & Northern, with headquarters at Mobile, Ala.,

succeeding **H. S. Jones**, who has been assigned to other duties. The office of engineer maintenance of way has been abolished.

H. E. Berg, chief draftsman in the engineering department of the Canadian National, with headquarters at Winnipeg, Man., has been promoted to assistant to the chief engineer of the Western region, with the same headquarters, succeeding **J. E. Davison**, whose promotion to district engineer of the Manitoba district was reported in the *Railway Age* of March 20.

Walter E. Guignon, who has been appointed engineer maintenance of way of the Eastern Ohio division of the Pennsylvania, with headquarters at Pittsburgh, Pa., was born on August 5, 1873, at Corry, Pa., and was graduated from the Case School of Applied Science in 1899. He entered railway service on July 1, 1901, as assistant on the engineers corps of the Pennsylvania at New Castle, Pa. On July 23, 1913, he was appointed assistant division engineer, with headquarters at Chicago, and from March 1, 1914, until the time of his recent appointment, he was division engineer at Zanesville, Ohio, Logansport, Ind., Canton, Ohio, and Pittsburgh, Pa., successively.

William F. Miller, who has been appointed engineer maintenance of way of the Eastern Pennsylvania division of the Pennsylvania, with headquarters at Harrisburg, Pa., was born on June 21, 1880, at Philadelphia, Pa., and attended the grammar schools of that city. He entered the service of the Pennsylvania in 1892 as a messenger in the train dispatcher's office of the Philadelphia division at West Philadelphia. He attended night school for several years and taking courses in mathematics and shorthand and from 1901 to 1903 studied railroad engineering. On July 8, 1903, he was placed on the engineers' corps of the Philadelphia Terminal division of the Pennsylvania, where he continued his studies. He was promoted to transitman at Altoona, Pa., on March 6, 1906, and on January 15, 1907, was promoted to assistant supervisor with the same headquarters. He became assistant supervisor of track at York Pa., on December 1, 1908, and main line assistant supervisor on the New York division at Trenton on August 1, 1910. He was promoted to supervisor and assistant trainmaster on the Williamsport division at Lewisburg, Pa., on July 15, 1913, and on August 1, 1914, was transferred to the office of the valuation engineer of the Pennsylvania at Philadelphia as pilot engineer and cost engineer. Mr. Miller became supervisor of the West Jersey & Seashore, with headquarters at Atlantic City, N. J., in October, 1917, and was successively supervisor of the South Philadelphia track elevation, and a supervisor on the Philadelphia Terminal division at West Philadelphia. On March 1, 1920, he was promoted to branch line division engineer of the Williamsport division at Williamsport, Pa., and on May 1, 1920, to main line division engineer of the Maryland division, with headquarters at Wilmington, Del., which position he was holding at the time of his recent appointment.

W. F. Miller

G. A. Phillips, who has been appointed engineer maintenance of way of the Lehigh Valley, with headquarters at Bethlehem, Pa., was born on September 28, 1889, at Dorchester, Mass., and was graduated from the University of Maine in 1911. He entered railway service in February, 1912, with the Lehigh Valley, and until September 15, 1915, was levelman and transitman. At that time he became assistant engineer of the Seneca division, which position he held until April 15, 1916. From April, 1916, to November 15, 1916, he was supervisor of track of the M. & H. division of the same road, with headquarters at Delano, Pa. He became division engineer of the same division, with headquarters at Hazleton, Pa., in November, 1916, and on August 1, 1920, was transferred in the same capacity to the Seneca division, which position he was holding at the time of his recent appointment to engineer maintenance of way.

William D. Wiggins, chief engineer maintenance of way of the Central region of the Pennsylvania, who has been promoted to assist with engineering work on the Central region, with headquarters at Pittsburgh, Pa., was born on April 28, 1873, at Richmond, Ind., and was graduated from the Rose Polytechnic Institute at Terre Haute, Ind., in 1895. He entered railway service in September, 1895, with the Pennsylvania Lines West of Pittsburgh, and served continuously until June 12, 1901; as assistant on the engineers' corps and assistant engineer on the Pittsburgh division. From June 16, to October, 1901, he was engineer maintenance of way on the Cincinnati & Muskingum Valley division at Zanesville, Ohio, and from October, 1901, to November 1, 1912, was engineer maintenance of way on the Cleveland & Marietta division at Cambridge, Ohio; on the Toledo division at Toledo, Ohio, and on the Pittsburgh division of the same road at Pittsburgh, Pa., consecutively. On the latter date he became superintendent of the Peoria division of the Vandalia (now a part of the Pennsylvania), at Decatur, Ill., which position he held until July 1, 1913, at which time he was appointed valuation engineer of the Pennsylvania Lines West of Pittsburgh, with headquarters at Pittsburgh, Pa. He remained in this position until March 1, 1920, when he became chief engineer maintenance of way of the Central region of the Pennsylvania System (of which the Pennsylvania Lines West of Pittsburgh are now a part), with headquarters at Pittsburgh, Pa., which position he was holding at the time of his recent promotion.

Purchases and Stores

J. L. Cowan, tie and timber agent of the Southern Pacific, lines in Texas and Louisiana, and formerly purchasing agent of the San Antonio & Aransas Pass, has been promoted to assistant purchasing agent of the lines in Texas and Louisiana, with headquarters at Houston, Tex.

E. T. Campbell and **E. Curtis** have been appointed division storekeepers on the Chesapeake & Ohio, with headquarters respectively at Russell, Ky., and Ashland, Ky. **R. H. Rutman** has been appointed assistant division storekeeper, with headquarters at Russell.

Obituary

M. P. Davis, general agent of the Louisville & Nashville, with headquarters at Kansas City, Mo., died in Pueblo, Col., on March 10.

I. B. Richards, assistant general superintendent of transportation of the Northern Pacific, with headquarters at Seattle, Wash., died in that city on April 7, after a short illness.

Francis E. House, president of the Duluth & Iron Range, who died suddenly at Janesville, Wis., on April 3, was born on November, 15, 1855, at Houseville, N. Y., and studied engineering and chemistry at Rensselaer Polytechnic Institute at Troy, N. Y. After several years of mining work in Nevada he entered railway service in 1880 in the engineering department of the Chicago, Milwaukee & St. Paul. He was promoted to roadmaster in 1883 and in 1887 was promoted to general roadmaster. In 1890 he was promoted to trainmaster on the Kansas City division. Mr. House was appointed to a position in the engineering department of the Lake Shore & Michigan Southern, now a part of the New York Central, in 1891, and in the following year was appointed engineer maintenance of way of the Pittsburgh & Lake Erie. He was promoted to chief engineer in 1894. He was appointed chief engineer of the Bessemer & Lake Erie in 1896, was promoted to general superintendent in 1897, and to general manager in 1901. Later in the same year he was elected president of the Duluth & Iron Range. During federal control Mr. House served as federal manager on the Duluth & Iron Range and the Duluth, Missabe & Northern.